Ministry of Higher Education and Scientific Research

Scientific Ssupervision and Evaluation device

Department of Quality Assurance and Academic Accreditation

International Accreditation Department

Academic Program Description For the Department of Chemistry for the Academic year 2025-2026 according Bologna process

Academic Program Description Form

University Name: University of Babylon

College/Institute: College of Science for Women

Name of the academic or professional program: Bachelor's in Chemistry

Name of final degree: Bachelor's in Chemistry

Study system: Bologna track

Description preparation date: 8/10/2025

Date of filling out the file: 14/10/2025

Signature: **Signature:**

Name of Department Head

Hazim Yahya Mohammed Ali

Date: 14 / 10 / 2025

Name of Scientific Assistant

Dr. Kawthar Mohammed Ali Hassan

Date: 14 / 10 / 2025

The file is checked by

Department of Quality Assurance and University Performance

Director of the Quality Assurance and University Performance Department:

Mohammed J.Jader

Date: 14 / 10 / 2025

Signature:

Approval of the Dean

Program Description – Introduction

The Bachelor's program in the Department of Chemistry aims to prepare qualified scientific and research-oriented graduates with a solid knowledge base in various branches of chemistry, including analytical, physical, biological, inorganic, and organic chemistry. The program equips students with the ability to contribute to advancing the scientific and research level in our country, with special emphasis on developing skills in modern laboratory techniques such as spectroscopic methods (UV, visible, and infrared) and other advanced analytical tools.

The program combines strong theoretical foundations with advanced practical training and is distinguished by its well-equipped laboratories containing state-of-the-art instruments. It adopts a learning approach based on research and applied projects, which enhances students' ability to innovate and solve complex scientific and technical problems, preparing them to engage in research and development or work in advanced scientific sectors.

The curriculum undergoes regular review to ensure alignment with international academic standards and labor market requirements. It also includes field training opportunities, providing graduates with a competitive advantage in the job market or when pursuing postgraduate studies at prestigious international universities.

Academic Program Description

1. Program Vision

Preparing a scientific and technical staff specialized in chemical analysis techniques with the ability to deal with all techniques in chemical analysis with high professionalism, including analyzes concerned with treating pollution from heavy chemical substances and elements such as lead and mercury that affect the lives of citizens. The department also contributes to the scientific research movement and introductory, developmental and advisory conferences. The unified curricula have been adopted with most Iraqi universities - the Department of Chemistry for the purpose of easy movement between departments in addition to scientific benefit from them, taking into account the requirements of the college as a scientific college according to Bologna process.

2. Program Mission

The Department of Chemistry at the College of Science for Girls seeks, in integration with the college's mission, to meet the community's needs for cadres specialized in chemistry, such as pathological analyzes and the use of modern techniques in the field of analysis of toxic and non-toxic elements in all scientific and practical applications, especially in the medical and industrial fields, and the preparation of cadres required by this. Specialized research to work in this field and keep up with the latest developments in it Bologna process.

In order to achieve the vision of the College of Science for Girls and to carry out its pioneering role in assuming a prominent scientific position among local, Arab and foreign colleges, the Department of Chemistry seeks to disseminate and consolidate the latest information about chemistry in Iraqi society to keep pace with the tremendous development that has been achieved during the last three decades in this field and at all levels of Nanotechnology and even outer space.

3. Program Objectives

.1 Preparing efficient cadres in the field of chemistry sciences

.2 Contribute to the development of cadres working in the field of chemical sciences

in various sectors such as the manufacture of fertilizers, oils and dairy.

.3 Developing the work system in the field of chemistry

.4 Spreading scientific awareness in the field of chemistry

5. Calculation of work in the industrial field related to chemistry according to Bologna process.

4. Programmatic Accreditation

nothing

5. Other External Influences

nothing

6. Program Structure

Program Structure	*Number of courses*	*Study unit*	*Percentage*	*Notes*
Institution Requirements	13	19	13.57 %	Basic
College Requirements	2	4	2.85 %	Basic
Department Requirements	46	117	83.57 %	Basic
Summer Training	nothing	nothing	/	/

7. Program Description

Year/level	course code	Name of the course	Credit hours	
			Theoretical	Practical

المرحلة الاولى- نظام بولونيا 2026- 2025

Republic of Iraq - Ministry of Higher Education and Scientific Research
University of Babylon
Bachelor's degree in chemistry science (First cycle)
Four years (Eight semesters) - 240 ECTS credits - 1 ECTS = 25 hr
Program Curriculum 2025 - 2026

جمهورية العراق - وزارة التعليم العالي والبحث العلمي
جامعة بابل
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أربع سنوات (ثمانية فصول دراسية) - ٢٤٠ وحدة اوربية - كل وحدة اوربية = ٢٥ ساعة
المنهاج الدراسي للعام ٢٠٢٥ - ٢٠٢٦

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	ect	ab	Pr	Tut	emn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	CHEM1111	Qualitative Analysis Chemistry	كيمياء التحليل النوعي	English	2	0	2	0	0	0	3	63	137	200	8.00	C	
		2	CHEM1112	Inorganic1	اللاعضوية ١	English	2	0	0	0	0	0	3	33	142	175	7.00	C	
		3	CHEM1103	Cytology	علم الخلية	English	2	0	2	0	0	0	3	63	87	150	6.00	S	
		4	CHEM1104	Labortary Safty	السلامة والامن الكيمياي	English	2	0	0	0	0	0	3	33	92	125	5.00	S	
		5	UOBAB1104	Human and Democracy	حقوق الانسان والديمقراطيه	Arabic	2	0	0	0	0	0	3	33	17	50	2.00	B	
		6	UOBAB1102	Arabic Language	اللغة العربيه	Arabic	2	0	0	0	0	0	3	33	17	50	2.00	B	
						Total	12	0	4	0	0	0	18	258	492	750	30.00		

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL	ect	ab	Pr	Tut	emn	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	Two	1	CHEM1201	Volumetric Analysis Chemistry	كيمياء التحليل الحجمي	English	2	0	2	0	0	0	3	63	137	200	8.00	C	CHEM1111
		2	CHEM1202	Inorganic 2	اللاعضوية ٢	English	2	0	0	0	0	0	3	33	142	175	7.00	C	CHEM1112
		3	CHEM1203	Mathematics I	رياضيات I	English	2	0	0	0	0	0	3	33	67	100	4.00	S	
		4	CHEM1204	Physics Science	الفيزياء	English	2	0	2	0	0	0	3	63	87	150	6.00	S	
		5	UOBABb4	Computer I	حاسوب I	Arabic	2	0	0	0	0	0	3	33	42	75	3.00	B	
		6	UOBABb1101	English Language I	لغة الانكليزية I	English	2	0	0	0	0	0	3	33	17	50	2.00	B	
						Total	12	0	4	0	0	0	18	258	492	750	30.00		

المرحلة الثانيه –نظام بولونيا 2026 - 2025

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المنهاج الدراسي للعام ٢٠٢٥ - ٢٠٢٦

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Lect (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	CHEM2311	Chemistry of represented elements 1	كيمياء العناصر الممثلة١	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		2	CHEM2302	Gravimetric analysis	التحليل الوزني	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		3	CHEM2313	Thermodynamics1	الديناميه الحراريه١	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		4	CHEM2314	Organic Chemistry1	الكيمياء العضوية١	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		5	CHEM2305	Differential equations	المعادلات التفاضلية	English	2	0	0	0	0	0	3	33	42	75	3.00	S	
		6		Computer 2	الحاسوب ٢	English	2	0	0	0	0	0	3	33	42	75	3.00	S	
						Total	12	0	8	0	0	0	18	318	432	750	30.00		

UGI	emest	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) :L (hr/wect (hr/vab (hr/v٢r (hr/w ut (hr/wemn (hr/	Exam hr/sem	SSW L hr/s em	USSW L hr/se m	SWL hr/s em	ECTS	Modu le Type	Prerequisite Module(s) Code
	Two	1	CHEM2401	Chemistry of represented elements 2	كيمياء العناصر الممثلة ٢	English	2 0 2 0 0 0	3	63	87	150	6.00	C	CHEM2311
		2	CHEM2402	Separation Methods	طرق الفصل	English	2 0 2 0 0 0	3	63	87	150	6.00	C	
		3	CHEM2403	Thermodynamics 2	الديناميه الحراريه ٢	English	2 0 2 0 0 0	3	63	87	150	6.00	C	CHEM2313
		4	CHEM2404	Organic Chemistry 2	الكيمياء العضوية ٢	English	2 0 2 0 0 0	3	63	87	150	6.00	C	CHEM2314
		5	UOBAB2301	Baath Party crimes	جرائم البعث البائد	Arabic	2 0 0 0 0 0	3	33	17	50	2.00	S	
			UOBAB2302	English Languagell	اللغة الانكليزيه II	English	2 0 0 0 0 0	3	33	17	50	2.00	S	
			UOBAB1102	Arabic Language	اللغة العربيه	Arabic	2 0 0 0 0 0	3	33	17	50	2.00	B	
						Total	12 0 8 0 0 0	18	318	432	750	30.00		

المرحلة الثالثه - نظام بولونيا 2025 - 2026

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المنهاج الدراسي للعام ٢٠٢٥-٢٠٢٦

Level	Semester	No.	Module Code	Module Name in English	اسم المادة الدراسية	Language	SSWL (hr/w) CL (hr/w)	Leof (hr/w)	Lab (hr/w)	Pr (hr/w)	Tut (hr/w)	Semn (hr/w)	Exam hr/sem	SSWL hr/sem	USSWL hr/sem	SWL hr/sem	ECTS	Module Type	Prerequisite Module(s) Code
UGI	One	1	CHEM3501	Electrochemistry	الكيمياء الكهربائيه	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		2	CHEM3502	Coordination chemistry1	الكيمياء التناسقية١	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		3	CHEM3503	Organic Chemistry 3	الكيمياء العضوية ٣	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		4	CHEM3504	Biochemistry1	الكيمياء الحياتية ١	English	2	0	2	0	0	0	3	63	87	150	6.00	C	
		5	CHEM3505	Industrial Chemistry	الكيمياء الصناعية	English	2	0	0	0	0	0	3	33	67	100	4.00	B	
		6	CHEM3506	Environmental Chemistry	كيمياء البيئه	English	2	0	0	0	0	0	3	33	17	50	2.00	S	
						Total	12	0	8	0	0	0	18	318	432	750	####		

UGI	emest	No.	Module Code	Module Name in English	اسم المادة الدراسية	Langua	SSWL (hr/w) :L (hr/wect (hr/vab (hr/v٢r (hr/w ut (hr/wemn (hr/	Exa m hr/se m	SS WL hr/s em	USS WL hr/se m	SWL hr/s em	ECT S	Mod ule Type	Prerequisite Module(s) Code
	Two	1	CHEM3601	Chemical kinetics	الكيمياء الحركيه	English	2 0 2 0 0 0	3	63	87	150	6.00	C	
		2	CHEM3602	Coordination chemistry2	الكيمياء التناسقية٢	English	2 0 2 0 0 0	3	63	87	150	6.00	C	
		3	CHEM3603	Organic Chemistry 4	الكيمياء العضوية ٤	English	2 0 2 0 0 0	3	63	87	150	6.00	C	
		4	CHEM3604	Biochemistry2	الكيمياء الحياتية ٢	English	2 0 2 0 0 0	3	63	87	150	6.00	C	
		5	CHEM3605	Industrial chemistry applications	تطبيقات الكيمياء الصناعية	English	2 0 0 0 0 0	3	33	17	50	2.00	B	
		5	CHEM3606	Research Methodology	منهج بحث	Arabic	2 0 0 0 0 0	3	33	17	50	2.00	S	
		6	CHEM3607	Nanotechnology	كيمياء النانو	English	2 0 0 0 0 0	3	33	17	50	2.00	B	
						Total	14 0 8 0 0 0	18	351	399	750	####		

8.The expected learning outcomes of the program	
Knowledge	
Knowledge and Understanding	1- 1. The student gets to know the concept of chemistry 2- 2. To classify the needs for developing chemistry 3- 3. To separate the chemical specifications according to the ISO system 4- 4. To evaluate the cost of maintaining chemical manufacturing equipment
Skills	
Subject-Specific Skills	.1The student's knowledge of the concept of chemistry .2The importance of chemistry in areas of life 3. Enabling female students to analyze the costs of working in the chemical industry
Thinking Skills	.1Thinking skill according to the student's ability (the goal of this skill is for the student to believe in what is tangible (the student's abilities) and understand when, what and how he should think and work to improve the ability to think reasonably(.2 High thinking skill (the goal of this skill is to teach thinking well before making the decision that determines the student's life(3. Critical thinking skills (a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it
Ethics	

Evaluation methods	1- Exams 2- Learning Matrix 3- Which Face 4- CAT (student feedback) 5- Learning Triangle 6- Seminars 7- On line lecture

9. Teaching and Learning Strategies

Learning strategies

1-Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life).

2- High thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking, or if he cannot think well, or if he cannot decide, or perhaps he will not decide, then this This means he does not have high thinking skills.)

3- Critical thinking strategy in learning (Critical Thanking) (It is a term that symbolizes the highest levels of thinking, which aims to pose a problem and then analyze it logically to reach the desired solution).

4-Brainstorming

Methods of teaching and learning

1- Method of giving lectures.

2- Student Center

3- Student groups

4- Workshops 5- (Scientific trips to follow up on the environmental reality) 6- Learning Technologies on Campus 7- (Experiential learning) 8- Application Learning)

10. Evaluation methods
1- Exams 2- Learning Matrix 3- Which Face 4- CAT (student feedback) 5- Learning Triangle ***6-*** practical ***8-*** tutorial

11. Faculty

Faculty Members

Academic Rank	***Instructor's name***	***Specialization***		***Special Requirements/skills (it applicable)***	***Number of the teaching staff***	
		General	***Special***		***staff***	***lecturer***

Professor	Dr. Hazim Yahya Mohammed Ali	Chemistry	Physical Chemistry		√	
Professor	Dr.Ayad Fahdil Mohammed	Chemistry	Physical Chemistry		√	
Professor	Dr. Talat Tariq Kahlil	Chemistry	Bio Chemistry		√	
Professor	Dr.Fuad Fahdil Mohammed	Chemistry	Analytical Chemistry		√	
Professor	Dr. Assyl Moshtaq Kahdim	Chemistry	Analytical Chemistry		√	
Professor	Dr. Suad Taha Saad	Chemistry	Inorganic Chemistry		√	
Assistant Professor	Dr. Noor Abed Al razaq	Chemistry	Organic Chemistry		√	
Assistant Professor	Dr. Ahmed Hassan Shintaf	Chemistry	Organic Chemistry		√	
Assistant Professor	Dr. Ali Talib Bader	Chemistry	Inorganic Chemistry		√	
Assistant Professor	Dr. Zainab Hashim Khudaier	Chemistry	Analytical Chemistry		√	
Assistant Professor	Dr. Ziyad Omran Musaa	Chemistry	Organic Chemistry		√	
Teacher	Shiren Hamza Abbas	Chemistry	Bio Chemistry		√	
Teacher	Mohammed Edan Hassan	Chemistry	Analytical Chemistry		√	
Teacher	Ali Mohsum Mohammed	Chemistry	Physical Chemistry		√	
assistant teacher	Rana Salah Norri	Chemistry	Bio Chemistry		√	
assistant teacher	Hadear Mohammed Subhi	Chemistry	Physical Chemistry		√	
assistant teacher	Eetiman Salah Mahdi	Chemistry	Inorganic Chemistry		√	

assistant teacher	Ahmed Falah Omran	Chemistry	Analytical Chemistry		√	
assistant teacher	Kaldun Gassim Mohammed	Chemistry	Bio Chemistry		√	
assistant teacher	Ahmed Hassan Hasnawi	Chemistry	Bio Chemistry		√	

Professional Development

Mentoring new faculty members

Teaching, like any other art, can be acquired by practicing and following its methods and principles, provided that there is a sincere desire to practice the teaching profession, and the method in education means taking interconnected steps to reach a specific goal that you hope to achieve. Therefore, it must follow the basic principles of good teaching, which are:

1- Directing and guiding learners by creating educational situations that lead to desirable activities.

2- Providing an atmosphere of love, kindness and cooperation between the teacher and the learners and between the learners themselves through his love for his students without discrimination and not excessive feminization.

3- Adopting democratic leadership through the emotional relationship between the teacher and his students, which leads them to control based on mutual respect and creating a cooperative atmosphere between the students and between the teacher and his students.

Professional development for faculty members

1- Thinking strategy according to the student's ability (for example: if the student is able to learn the correct concept of management, he will acquire the skill of managing and organizing his personal life). And the high thinking skill strategy (for example, if the student wants to make a good decision, it is important that he thinks well before he makes the decision, and if he decides without thinking or if he cannot think well or if he cannot decide or perhaps he will not decide, this means He does not have high thinking skills.)

2- General and transferable skills (other skills related to employability and personal development).

3- Verbal communication.

4- Teamwork.

5- Analysis and investigation (collecting information systematically and scientifically to establish facts and principles for solving the problem).

12. Acceptance criterion

Central acceptance and parallel acceptance

13. The most important sources of information about the program

1- The website of the college and university.

https://csg.uobabylon.edu.iq/
https://csg.uobabylon.edu.iq/department/?cdid=4

https://csg.uobabylon.edu.iq/department/dep_lectures.aspx?cdid=4

2- University guide .https://systems.uobabylon.edu.iq /

3- The most important books and resources in the college library.

14. Program development plan

The Bologna Process was applied to the students of the first stage, and work is being done to apply it to the next stages, along with conducting workshops and seminars to familiarize faculty members with the requirements of the Bologna Process and how to work with it, and to discuss the negatives and obstacles and find solutions for them. The electronic system was applied in the education process.

Program skills Outline																			
				Required program learning outcomes															
Year/Level	Course Code	Course Name	Basic or optional	Knowledge				Skills				Ethics				Other skills related to employability and personal development			
				A_1	A_2	A_3	A_4	B_1	B_2	B_3	B_4	C_1	C_2	C_3	C_4	D_1	D_2	D_3	D_4
The first stage, Course (1), according to the Bologna system	UOBAB0603011	Qualitative Analytical chem.	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603012	Inorganic -1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603013	Cytology	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603014	Laboratory safety	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBABb3	Human and Democracy	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB1102	Arabic Language	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*

Program skills Outline																			
				Required program learning outcomes															
Year/Level	*Course Code*	*Course Name*	*Basic or optional*	*Knowledge*				*Skills*				*Ethics*				*Other skills related to employability and personal development*			
				A_1	A_2	A_3	A_4	B_1	B_2	B_3	B_4	C_1	C_2	C_3	C_4	D_1	D_2	D_3	D_4
The first stage, Course (2), according to the Bologna system	UOBAB0603021	**Volumetric Analytical chem.**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603022	**Inorganic -2**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603023	**Mathematics**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603024	**Physics Sciences**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603025	**Computers Program**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	UOBAB0603026	**English Language**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*