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

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: semester + Bologna track

Description preparation date: 8/10/2025

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

Signature:

Name of Department Head

Hazim Yahya Mohammed Ali

Date: 14/ 10 / 2025

Signature:

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

Date: 14 / 10 / 2025

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.

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.

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

.1Preparing 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 the ISO standard

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

المواد الدراسية وعدد الوحدات للمرحلة الرابعة لقسم الكيمياء– كلية العلوم للبنات – جامعة بابل للعام الدراسي ٢٠٢٥ - ٢٠٢٦

المرحلة الرابعة- الفصل الاول

اسم الماده باللغه العربيه	اسم الماده باللغه الانكليزية	الساعات الاسبوعيه		عدد الوحدات
		نظري	عملي	
التحليل الالي-1	Instrumental analysis -1	2	2	3
كيمياء الكم	Quantum Chemistry	2	-	2
الكيمياء الصناعيه-1	Industrial Chemistry-1	2	2	3
الكيمياء الحياتيه السريرية- 1	Bio clinical chemistry-1	2	2	3
حلقية غير متجانسة	Heterocyclic	2	-	2
مشروع بحث	Research project	2	-	2

المرحلة الرابعة /الفصل الثاني

اسم الماده باللغه العربيه	اسم الماده باللغه الانكليزية	الساعات الاسبوعيه		عدد الوحدات
		نظري	عملي	
التحليل الالي-2	Instrumental analysis -2	2	2	3
الاطياف	Spectroscopy	2	-	2
الكيمياء الصناعيه-2	Industrial Chemistry-2	2	2	3
الكيمياء الحياتيه السريرية- 2	Bio clinical chemistry-2	2	2	3
كيمياء الضوء	Photochemistry	2	-	2
كيمياء التشخيص العضوي	Identification of organic chemistry	2	6	4

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

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

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. Suad Taha Saad	Chemistry	Inorganic 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	Dr. Ziyad Omran Musaa	Chemistry	Organic Chemistry		√	

Professor						
Teacher	Mohammed Edan Hassan	Chemistry	Analytical Chemistry		√	
Teacher	Ali Mohsum Mohammed	Chemistry	Physical Chemistry		√	
teacher	Shiren Hamza Abbas	Chemistry	Bio 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		Qualitative Analytical chem.	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Inorganic -1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Cytology	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Laboratory safety	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Human and Democracy	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		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		**Volumetric Analytical chem.**	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Inorganic -2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Mathematics	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Physics Sciences	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Computers Program	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		English 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
Second stage Course (1)	Sg Lph Gopt 201401 (2,2)	Chemistry of representative elements 1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Gravimetric analysis	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Thermodynamics -1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Organic Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Differential Equations	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Computer sciences-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Baath Partycrimes	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
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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
Second stage Course (2)		Chemistry of representative elements 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Separation Methods	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Thermodynamics 2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Organic Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		English Language-2	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 third stage Course (1)		Physical Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Organic Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Inorganic Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Biochemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Industrial Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Environmental	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		English Language-3	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 third stage Course (2)		Physical Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Organic Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Inorganic Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Biochemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Industrial Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Nanotechnology	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 fourth stage Course (1)		Instrumental analysis -1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Quantum Chemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
			Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Industrial Chemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Biochemistry-1	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Heterocyclic	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		English Language-4																	
	ـــــ	Research Methodology																	

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 fourth stage Course (2)		Instrumental analysis -2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Spectroscopy	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Industrial Chemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Biochemistry-2	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Photochemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
		Identification of organic chemistry	Basic	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*