

Anbar University/ College of Applied Sciences- Heet



جامعة الأنبار - كلية العلوم التطبيقية- هيت

First Cycle – Bachelor's degree (B.Sc.) – Applied chemistry

بكالوريوس علوم - الكيمياء التطبيقية



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1. Mission & Vision Statement

Vision Statement

The Department of Chemistry is looking forward to leading in chemistry, scientific research, and community service by providing distinguished educational programs. To develop the department as center of excellence in all aspects of education, research and development of basic technology in chemical sciences.

The Applied Chemistry Department is dedicated to

- providing a comprehensive, relevant curriculum at all post-secondary levels,
- producing knowledgeable graduates for careers in academia, industry and government,
- conducting significant research in chemistry,
- promoting a diverse population of faculty, staff and students, and
- promoting the collegial exchange of ideas, independent thought, and the highest ethical standards.

The vision of applied chemistry includes:

- Development of best resource for students and researchers.
- Catering the need of pharmaceutical, dye, polymer and agro-chemical industries.
- Development of new synthetic methodologies for functional materials.
- Strong collaboration with institutions, universities and industries of international repute.
- Utilization of excellent facilities.
- Analytical and consultancy service to industries.

Mission Statement

The Applied Chemistry Department pledges itself to encourage in the broadest and most liberal manner, the advancement of science and particularly chemistry in all of its branches through its education, research, and service missions.

Offering prospective academic programs and qualifying notable graduates capable of meeting labor market needs in the field of chemistry and its applications as well as preparing researchers capable of developing scientific research and community development.

Education Mission

The Chemistry Department is committed to helping each student achieve his/her personal academic potential by creating an environment that promotes

- frequent interactions between faculty and students,
- independent thought, collegial exchange of ideas and high ethical standards,
- development of innovative instructional techniques,
- use of modern educational technology in lecture and laboratory courses, and
- increased opportunities and greater participation by under-represented minorities.

2. Program Specification

Programme code:	BSc-MPH	ECTS	240
Duration:	4 levels, 8 Semesters	Method of Attendance:	Full Time

The program specification outlines the key details and requirements for the Applied chemistry Department program. This department focuses on the application of chemistry principles and explore new areas of research in both chemistry and allied fields of science and technology. Students will be skilled in problem solving, critical thinking and analytical reasoning as applied to scientific problems.

Duration: The program is typically structured as a four-year undergraduate degree, followed by a two-year postgraduate master's degree or a three-year doctoral degree.

- **Core Courses:** Students will have a firm foundation in the fundamentals and application of current chemical and scientific theories including those in Analytical, Inorganic, Organic and Physical Chemistries. Majors to be certified by the American Chemical Society will have extensive laboratory work and knowledge of Biological Chemistry.
- **Elective Courses:** Students will appreciate the central role of chemistry in our society and use this as a basis for ethical behavior in issues facing chemists including an understanding of safe handling of chemicals, environmental issues and key issues facing our society in energy, health and medicine.
- **Practical Training:** The program will include hands-on practical training components, including design and carry out scientific experiments as well as accurately record and analyze

the results of such experiments. These experiences will allow students to explore new areas of research in both chemistry and allied fields of science and technology.

- **Research Opportunities:** Students will have the opportunity to engage in research projects, collaborate with faculty, and Students will be able to explain why chemistry is an integral activity for addressing social, economic, and environmental problems.

3. Program Objectives

1. Preparing cadres with distinguished scientific and chemical competencies to meet the needs of the labor market and contribute to national development programs and plans and community service.
2. Solve the scientific and industrial problems facing the Kingdom's development plans.
3. Providing students with values and ideals and in-depth science enables them to actively participate in developing and planning programs' scientific and technical aspects.
4. Equipping advanced laboratories in the department to support applied scientific research, enabling the department to contribute to scientific research and community development.
5. Developing the performance of the administrative and technical staff to support the educational and research process of the department.
6. Providing a postgraduate program in fields related to chemistry and its applications.

4. Student Learning Outcomes

Upon completion of the Applied chemistry Department program, students should be able to demonstrate the following learning outcomes.

Outcome 1

Knowledge and Understanding:

The program provides opportunities for you to develop and demonstrate the following

- Demonstrate understanding of safe working practice, health and safety environment in terms of managing chemical toxicity, chemical stability and chemical reactivity, through knowledge-based risk assessments.
- Comprehension and critical evaluation of the application of materials, nanomaterials in specific industries.
- A critical appreciation of the complex and advanced analytical techniques which affect the structure and identification of various materials and nanostructure materials
- Knowledge in the methods of acquiring, interpreting and analyzing information with a critical understanding of the appropriate contexts for their use through the study of texts, papers, reports and data sets; and their application to research projects.
- Knowledge of key practices and theories relevant to specific topics in applied chemistry.
- A critical appreciation of the complex relationships which affect the structure, composition and behavior of materials

Outcome 2

Practical Skills:

The program provides opportunities for you to develop and demonstrate the following:

- An ability to conduct experiments and chemical reactions in a safe manner in line with appropriate risk assessments.
- Proficient use of advanced chemical instrumentation in conducting laboratory procedures
- The ability to plan and carry out experimental procedures to solve qualitative and quantitative problems.
- Competence in relation to applied chemistry in a work place.
- Team working, performing different roles, interact positively within groups and teams, and applying a variety of strategies.
- Comprehensive skills in the monitoring and assessment by observation and measurement, of chemical properties, processes, and the systematic and reliable recording and documentation.
- Effective communication skills, covering scientific writing, oral communication, presenting of material and arguments to a variety of audiences.
- Professional employment standards of common conventions and standards in scientific writing, data presentation, and referencing literature.
- **Outcome 3**

Critical Thinking and Problem-Solving:

- Conduct laboratory experiments safely, evaluate the potential impact of chemistry that may have on society, health and the environment
- Enhance student's self and long life-learning using information technology, risk management, organization of time, and reviewing of a quality control processes
- Collaborate effectively as part of a team, recognizing and respecting the viewpoints of others
- and developing understanding and awareness of leadership styles and their impacts upon projects.

Outcome 4

Communication and Collaboration:

- which covers any sort of volunteer work, either in your community, on a national scale, or abroad, most educational institutions offer regular opportunities for students to give back to the community.
- These activities take a variety of shapes, including participating in environmental cleanup efforts and mentoring students in elementary schools.
- Including volunteer work on the resume shows the degree of commitment to helping your community and the willingness to serve others.

Outcome 5

Lifelong Learning and Professional Development:

- which shows that the passionate about learning and gaining a competitive advantage. At the collegiate level, many high-performing students are invited to join professional societies.

- These are typically national associations that seek out members who are skilled in a particular field.
- Joining one of these societies shows the commitment to your chosen industry and the level of professional competency.
- Belonging to a club or taking part in professional training is beneficial because it shows potential employers that the student has some technical skills.

5. Academic Staff

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6. Credits, Grading and GPA

Credits

Anabr University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs student workload, including structured and unstructured workload.

Grading

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

GRADING SCHEME مخطط الدرجات				
Group	Grade	التقدير	Marks (%)	Definition
Success Group (50 - 100)	A - Excellent	امتياز	90 - 100	Outstanding Performance
	B - Very Good	جيد جدا	80 - 89	Above average with some errors
	C - Good	جيد	70 - 79	Sound work with notable errors
	D - Satisfactory	متوسط	60 - 69	Fair but with major shortcomings
	E - Sufficient	مقبول	50 - 59	Work meets minimum criteria
Fail Group (0 - 49)	FX – Fail	راسب - قيد المعالجة	(45-49)	More work required but credit awarded
	F – Fail	راسب	(0-44)	Considerable amount of work required
Note:				
Number Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above.				

Calculation of the Cumulative Grade Point Average (CGPA)

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.

CGPA of a 4-year B.Sc. degree:

$$\text{CGPA} = [(1^{\text{st}} \text{ module score} \times \text{ECTS}) + (2^{\text{nd}} \text{ module score} \times \text{ECTS}) + \dots] / 240$$

7. Curriculum/Modules

Semester 1 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MPH-111	Electricity and magnetism	94	56	6.00	C	
MPH-112	Analytical chemistry	94	56	6.00	C	
MPH-113	Mathematics 1	79	96	7.00	B	
MPH-114	General Biology 1	64	86	6.00	B	
SCI-101	Computers 1	48	27	3.00	S	
UNI-101	English Language 1	32	18	2.00	S	

Semester 2 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Che-1111	Qualitative Analytical Chemistry	109	91	8.00	C	
Che-1112	Inorganic Chemistry 1	79	121	8.00	c	
Che-1103	Physics	79	71	6.00	B	
Che-1104	Chemical Security and Safety	32	18	2.00	S	
UOA-1105	Democracy and Human Rights	32	18	2.00	S	
UOA-1106	Mathematics I	48	52	4.00	S	

Semester 3 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Che-1207	Volumetric Analytical Chemistry	79	46	5.00	C	
Che-1208	Inorganic Chemistry 2	79	46	5.00	C	

Che-1209	Statistics	79	46	5.00	B	
Che-12010	cell biology	79	46	5.00	B	
CoS-12011	Computers Program	63	62	5.00	C	
UOA-12012	Languages	79	46	5.00	B	

Semester 4 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
MPH-221	Medical imaging	79	71	6.00	C	
MPH-222	Molecular biology	79	46	5.00	C	MPH-123
MPH-223	Bioelectronics	79	71	6.00	C	MPH-213
MPH-224	Healthy culture	48	27	3.00	C	
MPH-225	Biophysics	79	46	5.00	C	
MPH-226	Phonetics Science	48	77	5.00	B	MPH-121

Semester 5 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Che-23113	Gravity Analytical Chemistry	79	46	5.00	C	
Che-23114	Inorganic Chemistry 3	79	46	5.00	C	
Che-23115	Thermodynamic Chemistry 1	33	67	4.00	C	
Che-23116	Organic Chemistry 1	94	56	6.00	C	
CoS-23017	Cytology	94	56	6.00	B	
CoS-23018	Mathematics II	48	52	4.00	B	

Semester 6 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
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Che-24019	separation methods	79	21	4.00	C	
Che-24020	Inorganic Chemistry 4	79	46	5.00	C	
Che-24021	Thermodynamic Chemistry 2	79	71	6.00	C	
Che-24022	Organic Chemistry 2	79	71	6.00	C	
CoS-24023	Nanotechnology	79	46	5.00	B	
CoS-24024	English language 2	48	52	4.00	B	

Semester 7 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Che-35125	Inorganic Chemistry 5	79	71	6.00	C	
Che-35126	Kinetic Chemistry	79	46	5.00	C	
Che-35127	Organic Chemistry 3	79	71	6.00	C	
Che-35128	Biochemistry 1	79	46	5.00	C	
Che-35129	Principles of Industrial Chemistry	48	52	4.00	B	
Che-35030	Selective 1	33	67	4.00	E	

Semester 8 | 30 ECTS | 1 ECTS = 25 hrs

Code	Module	SSWL	USSWL	ECTS	Type	Pre-request
Che-36031	Inorganic Chemistry 6	79	71	6.00	C	
Che-36032	Electric Chemistry	79	71	6.00	C	
Che-36033	Organic Chemistry 4	49	76	5.00	C	
Che-36034	Biochemistry 2	49	76	5.00	C	
Che-36135	Application of Industrial Chemistry	48	52	4.00	C	
Che-36036	Scientific Research Methodology	48	52	4.00	E	

8. Contact

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