

About the Department

Establishment

The Chemistry Department at the University of Jazan (JU) was established in 2006 (1426 H) with the objective to provide its students with a rigorous and competitive education and training to meet the needs of society, and contribute to the development of our beloved country in today's scientific and technical era in various sectors such as education, industry, environment, technology, and others, which require a well-trained and qualified generation.

The Department offers a Bachelor of Science degree in Chemistry with a focus on the fundamental concepts and applications in various fields of Chemistry. The Department curriculum also includes training of students on research skills by integrating the fundamental concepts in their research projects under the supervision of the faculty.

In addition, the Chemistry Department provides opportunities for its successful graduates to continue their research in prestigious international universities under the supervision of the faculty jointly with the faculty in those international universities for projects. Furthermore, the Department has a future plan for post-graduate studies in master's and doctorate degrees.

The Chemistry Department at Jazan University has currently more than 300 students, and annually accepts around 100 new students. The Department has over 35 faculty members from different countries in different disciplines of Chemistry. The faculty also carries scientific research within their groups, in addition to their teaching responsibilities.

Vision

To be a leading department in the field of chemistry at the local and global level.

Mission

The mission of the department in the preparation of a generation of scientific personnel trained and qualified to meet the needs of the labor market of national cadres, and work to produce a generation of scientists and researchers, and contribute to solving the problems of scientific and industrial facing development plans in the kingdom, and to provide technical services for both government and private section.

Goals

- Provision of knowledge in the field of Chemistry.
- Provision of trained Saudi national professional manpower.
- Conducting Chemical studies on environmental and industrial fields in the Kingdom
- Encouraging applied research for national development plans.
- Encouraging engagement with society and community service

Degrees Offered

Students will graduate with a Bachelor of Science in Chemistry (B. Sc. in Chemistry) after they complete 130 credit hours, God willing.

Why we need Chemistry?

Chemistry is the study of matter and energy and the interaction between them. There are many reasons to study chemistry, even if you aren't pursuing a career in science.

Answer: Chemistry is everywhere in the world around you! It's in the food you eat, the clothes you wear, the water you drink, medicines, air, cleaners... you name it. Chemistry sometimes is called the "central science" because it connects other sciences to each others, such as biology, physics, geology and environmental science. Here are some of the best reasons to study chemistry.

Chemistry helps you to understand the world around you. Why do leaves change color in the fall? Why are plants green? How is cheese made? What is in soap and how does it clean? These are all questions that can be answered by applying chemistry.

A basic understanding of chemistry helps you to read and understand product labels.

Chemistry can help you make informed decisions. Will a product work as advertised or is it a scam? If you understand how chemistry works you'll be able to separate reasonable expectations from pure fiction.

Chemistry is at the heart of cooking. If you understand the chemical reactions involved in making baked goods rise or neutralizing acidity or thickening sauces, chances are you'll be a better cook. A command of chemistry can help keep you safe! You'll know which household chemicals are dangerous to keep together or mix and which can be used safely.

Chemistry teaches useful skills. Because it is a science, learning chemistry means learning how to be objective and how to reason and solve problems.

Helps you to understand current events, including news about petroleum, product recalls, pollution, the environment and technological advances.

Makes life's little mysteries a little less.... mysterious. Chemistry explains how things work.

Chemistry opens up career options. There are many careers in chemistry, but even if you're looking for a job in another field, the analytical skills you gained in chemistry are helpful. Chemistry applies to the food industry, retail sales, transportation, art, homemaking... really any type of work you can name.

Chemistry is fun! There are lots of interesting chemistry projects you can do using common everyday materials. Chemistry projects don't just go boom. They can glow in the dark, change colors, produce bubbles and change states.

Job Opportunities

The Department gives its students rigorous and extensive training covering all disciplines of Chemistry, which in turn equips them with greater career opportunities. Among these opportunities are:

- To pursue graduate studies in the best universities in the world.
- To do research
- To work in private tech-based companies such as Aramco, Sabiq, Economical City, and Industrial City.
- To teach in government schools and others.

2. General Information

Location

The Department of Chemistry is located in the Science Faculty at Jazan University beside the Red Sea coast, on the north of the city of Jazan. The department building consists of three floors: the first floor houses teaching labs, the second floor houses teaching classrooms, and the third floor houses the offices of the faculty and staff.

Library

The library is located in the third floor of the Faculty of Science building. It contains a good number of scientific books, electronic resources, references, and study rooms equipped with computers with the Internet access.

In addition to the above-mentioned library, the Jazan University also has a central library, which contains a multitude of specialized books, and electronic resources on science. The latter can be accessed through the central library website. For more information, please contact the Chemistry Department secretary.

Laboratories

The Department contains many teaching and research laboratories: General Chemistry laboratory, Physical Chemistry laboratory, Organic Chemistry laboratory, Analytical Chemistry laboratory, and Biochemistry laboratory. All the laboratories are equipped with modern equipment.

Computer Facilities

The Faculty has a computer room with the Internet access available for student use in their research, report writing, and projects required for their graduation.

Practical Lab Sessions

Some courses are both theoretical and experimental. For the experimental portion of such a course, students are expected to attend various lab sessions. The attendance of such sessions is obligatory. A student who misses a lab session will automatically be counted as absent in the theoretical session. In addition, the grades in the lab session will be added to the theoretical part. A practical lab session is essential and integral to the theoretical part of a course. The Chemistry Department is very strict when it comes to student attendance in both theoretical and lab sessions.

Office Hours

Office hours are an important means of communication between students and professors to solve any problems that students might have in their course work or other academic matters. The Department expects each teaching faculty member to allocate 10 hours per week for office hours. The Department encourages all its students to take advantage of office-hour sessions for any advice and/or assistance they might need.

Attendance Policy

The regular lectures and lab sessions are supposed to be venues in which a faculty member transfers his knowledge and know-how to students. Therefore, if a student misses class, he will lag behind the course material, and this might cause him to do poorly on the exams.

The students are also recommended not to come to class after the class starts, because this will cause confusion and inconvenience to the instructor. It is the responsibility of professor to check late-comings, and not allow students to make them into a habit without any warranted excuse.

According to the rules of the university, the absence of a student must not exceed 25% of the total number of classes in a semester; otherwise the student might be denied to take the final exam.

The Chemistry Department emphasizes the need for students to attend classes regularly, except, of course, for extenuating circumstances, for which he must produce documentation. For more information on this, please refer to the Rules and Regulations of the university.

Seminars and colloquia

The Chemistry Department organizes weekly meetings and seminars on Wednesday (or other day) between 12:00am-01:00pm in the seminar room located in the 2nd floor of the Faculty of Science. These seminars will be conducted by researchers from our department.

The department encourages students to attend these seminars and participate in scientific discussions.

Department Meetings

- *Department Routine Meeting (RM)*

The Chemistry Department organizes regular departmental meetings in which various issues are discussed. Among them are general logistics problems, teaching-related and student issues.

- *Department Review Meeting (DRM)*

The Department Review Meetings are held at the end of each month. The attendance of all faculty members is required at these meetings. The aim of DRMs is to review the general policy of the Chemistry Department in science education and research. Among the subjects discussed at these meetings are:

- The policy of the department and its future plans within the general vision, mission, and plans of the university.
- Updating the vision, mission, and objectives of the department based on modern developments.
- The policy of the Department on education and teaching methods employed by the Department under the guidelines of the Chemistry Education Committee.
- Development of the process of science education to achieve the university objectives.
- Review of the efforts of the Department on the development and quality within the relevant standards of the university.
- How to establish a cutting edge research program in the Chemistry Department, that will in turn benefit the Kingdom.

Staff room

The Department has a staff room for faculty members overlooking the Red Sea, where professors can drink a cup of tea or coffee and relax with other faculty members.

Student room

The Department also has a room for students in the second floor of the Science building where they can meet other students, relax, and have scientific conversations.

3. Plan of Study

The Bachelor of Science degree in Chemistry is awarded after a 4-year study involving 130 credit units and a general grade not less than "Pass" (not less than 2/5).

Undergraduate Program for Chemistry Department Leading to B.Sc. Degree in Major Chemistry:

Each Student majoring in Chemistry must complete 130 credit hours fulfillment of the degree of B.Sc. with grade, at least, "Pass" (cumulative grade 2 of 5) distributed as follows:

Requirements	Lectures	Practical	Credit Hours
University Requirements	14	2	15
College Requirements	27	9	24
Department Requirements	69	42	91
Total	110	53	130

Meaning of Numbers Used for Chemistry Courses (Coding System)*:

Meaning	Hundreds	Tens	Ones
First Year (Preparatory Year)	1	--	--
Second Year	2	--	--
Third Year	3	--	--
Fourth Year	4	--	--
General Courses	--	0	--
Analytical Chemistry	--	1	--
Inorganic Chemistry	--	2	--
Organic Chemistry	--	3	--
Physical Chemistry	--	4	--
Research Courses	--	9	--
Serial number	--	--	(1 to 9)

* The coding system is available for department courses only.

University Requirements:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Arab 101	Arab Language skills	2	2	--	--
Arab 102	Arabic Writing	2	2	--	--
Islm 101	Islamic culture 1	2	2	--	--
Islm 102	Islamic culture 2	2	2	--	--
Islm 103	Islamic culture 3	2	2	--	--
Islm 104	Islamic culture 4	2	2	--	--
Comp 101	Introduction to Computer	3	2	2	--
Total		15	14	2	

College Requirements:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Math 101	General Mathematics	3	3	--	--
Bio 101	General Biology	4	3	2	--
Chem 101	General Chemistry	4	3	2	--
Phys 101	General Physics	4	3	2	--
Engl 105	English Language	6	12	3	--
Engl 106	Scientific English Language	3	3	--	--
Total		24	27	9	

Department Requirements:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem201	General and Physical Chemistry	4	3	2	--
Chem 211	Volumetric Analytical Chemistry	3	2	2	--
Chem 212	Chemistry of Gravimetric Analysis	3	2	2	--
Chem 313	Chromatographic Analysis	3	2	2	--
Chem 314	Electrochemical analysis methods	3	2	2	--
Chem 415	Methods of Instrumental analysis	4	3	2	Chem 314
Chem 221	Chemistry of Main Groups	4	3	2	--
Chem 322	Chemistry of Transition Elements	4	3	2	Chem 221
Chem 323	Co-ordination Chemistry	3	2	2	Chem 322
Chem 424	Lanthanides & Actinides	3	2	2	Chem 323
Chem 425	Group Theory	2	2	--	--
Chem 231	Aliphatic organic Chemistry	3	2	2	--
Chem 232	Aromatic Organic Chemistry	3	2	2	Chem 231
Chem 333	Heterocyclic Organic Chemistry	3	2	2	--
Chem 334	Spectroscopy of Organic Compounds	2	2	--	--
Chem 335	Organic Reaction Mechanisms	3	2	2	--
Chem 436	Chemistry of Natural Products	3	2	2	--
Chem 437	Stereochemistry	2	2	--	--
Chem438	Organic applied chemistry	3	2	2	
Chem 439	Principles of Biochemistry	3	2	2	--
Chem 241	Thermodynamics	3	2	2	--
Chem 342	Kinetic Chemistry	3	2	2	--
Chem 343	Surface Chemistry & Catalysis	3	3	--	--
Chem 344	Electrochemistry	3	2	2	--
Chem 445	Solution Chemistry	3	2	2	--
Chem 446	Polymer Chemistry	2	2	--	--
Chem 447	Quantum Chemistry	3	3	--	Math 202
Chem 448	Photochemistry	2	2	--	--
Chem 491	Graduation Project	2	1	2	Department Approval
Math 201	Calculus	3	3	--	--
Math 202	Differential Equations	3	3	--	Math 201
Total		91	44	69	XXXX

Courses of Analytical Chemistry:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem 211	Volumetric Analytical Chemistry	3	2	2	--
Chem 212	Chemistry of Gravimetric Analysis	3	2	2	--
Chem 313	Chromatographic Analysis	3	2	2	--
Chem 314	Electrochemical analysis methods	3	2	2	--
Chem 415	Methods of Instrumental analysis	4	3	2	Chem 314
Total		16	11	10	


Courses of Inorganic Chemistry:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem221	Chemistry of Main Groups	4	3	2	--
Chem 322	Chemistry of Transition Elements	4	3	2	Chem 221
Chem 323	Co-ordination Chemistry	3	2	2	Chem 322
Chem 424	Lanthanides & Actinides	3	2	2	Chem 323
Chem 425	Group Theory	2	2	--	--
Total		16	12	8	


Courses of Organic Chemistry:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem 231	Aliphatic organic Chemistry	3	2	2	--
Chem 232	Aromatic Organic Chemistry	3	2	2	Chem 231
Chem 333	Heterocyclic Organic Chemistry	3	2	2	--
Chem 334	Spectroscopy of Organic Compounds	2	2	--	--
Chem 335	Organic Reaction Mechanisms	3	2	2	--
Chem 436	Chemistry of Natural Products	3	2	2	--
Chem 437	Stereochemistry	2	2	--	--
Chem438	Organic applied chemistry	3	2	2	
Chem 439	Principles of Biochemistry	3	2	2	--
Total		25	18	14	


Courses of Physical Chemistry:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem 241	Thermodynamics	3	2	2	--
Chem 342	Kinetic Chemistry	3	2	2	--
Chem 343	Surface Chemistry & Catalysis	3	3	--	--
Chem 344	Electrochemistry	3	2	2	--
Chem 445	Solution Chemistry	3	2	2	--
Chem 446	Polymer Chemistry	2	2	--	--
Chem 447	Quantum Chemistry	3	3	--	Math 202
Chem 448	Photochemistry	2	2	--	--
Total		22	18	8	

General Courses:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Chem201	General and physical Chemistry	4	3	2	--
Chem 491	Graduation Project	2	1	2	Department Approval
Total		6	4	4	

Courses from Other Departments:

Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.	
Math 201	Calculus	3	3	--	--
Math 202	Differential Equations	3	3	--	Math 201
Total		6	6	--	

Complete Plan

Year	Course Code	Course Title	Required or Elective	Credit Hours	College or Department
1st year / 1st Semester					
	101ISLM	Islamic Culture 1	R	2	Col. Humanities
	105ENGL	English Language	R	6	ELTC
	101BIO	General Biology	R	4	Prep. Year
	101MATH	General Mathematics	R	3	Prep Year
	101COMP	Introduction Computer Sci.	R	3	Coll. Comp. / IT
1st year / 2nd Semester					
	102ISLM	Islamic Culture 2	R	2	Col. Humanities
	101ARAB	Linguistic Skills	R	2	Col. Humanities
	101PHYS	General Physics	R	4	Prep. Year
	101CHEM	General Chemistry	R	4	Prep. Year
	106ENGL	Scientific English	R	3	ELTC
2nd year / 1st Semester					
	102ARAB	Arabic Editing	R	2	Col. Humanities
	103 ISLM	Islamic culture 3	R	2	Col. Humanities
	201MATH	Calculus	R	3	Mathematics
	231CHEM	Aliphatic organic Chemistry	R	3	Chemistry
	211CHEM	Volumetric Analytical Chemistry	R	3	Chemistry
	201CHEM	General and physical Chemistry	R	4	Chemistry
2nd year / 2nd Semester					
	104ISLM	Islamic Culture 4	R	2	Col. Humanities
	202MATH	Differential Equations	R	3	Mathematics
	212CHEM	Chemistry of Gravimetric Analysis	R	3	Chemistry
	221CHEM	Chemistry of Main Groups	R	4	Chemistry
	232CHEM	Aromatic Organic Chemistry	R	3	Chemistry
	241CHEM	Thermodynamics	R	3	Chemistry
3rd Year / 1st Semester					
	313CHEM	Chromatographic Analysis	R	3	Chemistry
	322CHEM	Chemistry of Transition Elements	R	4	Chemistry
	333CHEM	Heterocyclic Organic Chemistry	R	3	Chemistry
	342CHEM	Kinetic Chemistry	R	3	Chemistry
	343CHEM	Surface Chemistry & Catalysis	R	3	Chemistry
3rd Year / 2nd Semester					
	314CHEM	Electrochemical analysis methods	R	3	Chemistry
	323CHEM	Co-ordination Chemistry	R	3	Chemistry
	334CHEM	Spectroscopy of Organic Compounds	R	2	Chemistry
	335CHEM	Organic Reaction Mechanisms	R	3	Chemistry
	344CHEM	Electrochemistry	R	3	Chemistry
4th Year / 1st Semester					
	436CHEM	Chemistry of Natural Products	R	3	Chemistry
	437CHEM	Stereochemistry	R	2	Chemistry
	445CHEM	Solution Chemistry	R	3	Chemistry
	446CHEM	Polymer Chemistry	R	2	Chemistry
	447CHEM	Quantum Chemistry	R	3	Chemistry
	491CHEM	Graduation Project	R	2	Chemistry
4th Year / 2nd Semester					
	415CHEM	Methods of Instrumental analysis	R	4	Chemistry
	424CHEM	Lanthanides & Actinides	R	3	Chemistry
	425CHEM	Group Theory	R	2	Chemistry
	438CHEM	Organic applied chemistry	R	3	Chemistry
	439CHEM	Principles of Biochemistry	R	3	Chemistry
	448CHEM	Photochemistry	R	2	Chemistry

Chemistry Study Plan

First Year											
Level (1)						Level (2)					
Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite	Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.					Lec.	Prac.	
Islm101	Islamic culture	2	2	--	--	Islm 102	Islamic culture 2	2	2	--	--
Eng 105	English Language	6	12	3	--	Engl 106	Scientific English Language	3	3	--	Eng 105
Bio 101	General Biology	4	3	2	--	Arab 101	Arab Language skills	2	2	--	--
Math 101	General Mathematics	3	3	--	--	Chem 101	General Chemistry	4	3	2	--
Comp101	Introduction to Computer	3	2	2	--	Phys 101	General Physics	4	3	2	--
Total		18	22	7				15	13	4	
Second Year											
Level (3)						Level (4)					
Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite	Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.					Lec.	Prac.	
Chem201	General and physical Chemistry	4	3	2	Chem101	Chem 212	Chemistry of Gravimetric Analysis	3	2	2	--
Chem 211	Volumetric Analytical Chemistry	3	2	2	--	Chem221	Chemistry of Main Groups	4	3	2	--
Chem 231	Aliphatic organic Chemistry	3	2	2	--	Chem 232	Aromatic Organic Chemistry	3	2	2	Chem 231
Math 201	Calculus	3	3	--	--	Chem 241	Thermodynamics	3	2	2	--
Islm103	Islamic culture 3	2	2	--	--	Math 202	Differential Equations	3	3	--	Math 201
Arab 102	Arabic Writing	2	2	--	--	Islm104	Islamic culture 4	2	2	--	--
Total		17	14	6		Total		18	14	8	

Third Year											
Level (5)						Level (6)					
Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite	Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.					Lec.	Prac.	
Chem 313	Chromatographic Analysis	3	2	2	--	Chem 314	Electrochemical analysis methods	3	2	2	--
Chem 322	Chemistry of Transition Elements	4	3	2	Chem 221	Chem 323	Co-ordination Chemistry	3	2	2	Chem 322
Chem 333	Heterocyclic Organic Chemistry	3	2	2	--	Chem 334	Spectroscopy of Organic Compounds	2	2	--	--
Chem 342	Kinetic Chemistry	3	2	2	--	Chem 335	Organic Reaction Mechanisms	3	2	--	--
Chem 343	Surface Chemistry & Catalysis	3	3	--	--	Chem 344	Electrochemistry	3	2	2	--
Total		16	12	8		Total		14	10	6	
Fourth Year											
Level (7)						Level (8)					
Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite	Course No.	Course Title	Credit Hours	Contact Hours		Pre-requisite
			Lec.	Prac.					Lec.	Prac.	
Chem 436	Chemistry of Natural Products	3	2	2	--	Chem 415	Methods of Instrumental analysis	4	3	2	Chem 314
Chem 437	Stereochemistry	2	2	--	--	Chem 424	Lanthanides & Actinides	3	2	2	Chem 323
Chem 445	Solution Chemistry	3	2	2	--	Chem 425	Group Theory	2	2	--	--
Chem 446	Polymer Chemistry	2	2	--	--	Chem 438	Organic applied chemistry	3	2	2	
Chem 447	Quantum Chemistry	3	3	--	Math 202	Chem 439	Principles of Biochemistry	3	2	2	--
Chem 491	Graduation Project	2	1	2	Department Approval	Chem 448	Photochemistry	2	2	--	--
Total		15	12	6		Total		17	13	8	

Total Credit Hours = 130 Hours³.

Research experience for undergraduates Students

The Chemistry Department places great importance on undergraduate research, which is a good opportunity for students to develop good research skills and prepare them for their careers. In this project, they will also learn how to work in a group setting and interact with their peers and advisors. To this end, our students are required to choose a research project in consultation with their faculty project advisor (their supervisor). In these projects, students interact with their advisors closely, and learn how to design a project in a given research topic, which involves forming a hypothesis, carrying out experiments and data collection, interpretation of results, and conclusion. At the end of the research project, the student is supposed to present his work before a faculty committee, which will evaluate the quality of the project and the presentation.

Distinguished student projects will be encouraged and supported to participate in the annual national undergraduate research conference organized by the Ministry of Higher Education. The conference is attended by a large number of students from various universities and different disciplines from all around the Kingdom. In the past, two of our students attended this conference held in Jeddah city in 1432H, three of our students attended this conference held in Riyadh city in 1433H. Moreover, and the Chemistry Department will also support the participation of students with distinguished projects at international conferences and in summer schools. The latter is a valuable and transformative experience for students to further their understanding of the scientific method and imagination, and meet students from other nationalities. In the past, some of our students also participated in a summer school held in South Korea republic and United State of America in the summer of 1433H.

The research project consists of several stages:

1. Registration in the project

Senior students who have completed their requirements for six levels and succeeded in specialized basic courses determined by the department have to register for this project course, which must be approved by the department head.

2. Selecting the Research Project

The faculty will determine a set of research projects and topics, which will be announced in the first week of classes. A sample project will be available for students' examination. Two students will work on a chosen project together under the supervision of the relevant faculty (arranged with the supervisor).

3. Completion of the Research Project

Students are expected to work on their project throughout the semester with their supervisor, who will provide them with references and research papers on their topic. The supervisor will allocate the research task among the students. If needed, the supervisor will deliver a series of lectures to initiate them to the subject matter and provide them with the scientific background. During the semester supervisors will follow up their students' work periodically.

4. *The Project Presentations*

At the end of the semester, students are expected to submit a project report to their supervisors before its deadline. The project committee will determine the date of the presentations (Poster and/or Oral). The duration of each presentation is about 15 minutes, during which time students will present their work to an audience consisting of both faculty and students. In addition to any potential questions from the audience, the committee members will ask students questions. This is a great opportunity for students to practice their scientific presentation skills before an audience.

5. *Award for the Best Project*

To encourage students to excel in their projects, and for a fair competition, the department has established an award for the best student project. Furthermore, distinguished projects will be nominated for participation in competitions inside or outside the Kingdom.