

Courses offered in the Department of Chemistry

Catalogue Year: 2021-2022

Core Courses					Elective Courses / Specializations (if any)				
Core Courses	Cr.H	Remarks/ Prerequisite (if any)	Offered in Fall /Spring /Summer	Remarks/ cross-listed etc.	Elective Courses	Cr. H	Pre.Req	Offered in Semester	Remarks/ cross- listed etc.
CHEM 250	4	Intermediate or A-Level Chemistry	Fall & Spring		Inorganic-Analytical Chemistry				
CHEM 261	4	Intermediate or A-Level Chemistry	Fall & Spring		CHEM 413	4	CHEM 311 or 370	Spring	
CHEM 270	4	Intermediate or A-Level Chemistry	Fall & Spring		CHEM 450	4	CHEM 250 or 350	Spring	
CHEM 311	4	Sopho &	Fall & Spring		CHEM 453	3	CHEM 250 or 350	Spring	
CHEM 320	4	above	Fall & Spring	ENVR 320	CHEM 454	3	CHEM 250 or 350	Fall	
CHEM 330	4	Sopho & above	Fall & Spring		CHEM 455	4	CHEM 250 or 350	Fall	
CHEM 350	4	CHEM 160 or 261 or Equivalent	Fall & Spring		Organic-Biochemistry				
CHEM 361	4	CHEM 150 or 250	Fall & Spring		CHEM 260	4	Intermediate or A-Level Chemistry	Spring	
CHEM 370	4	CHEM 260 or 261	Fall & Spring		CHEM 331	3	CHEM 330	Spring	
					CHEM 462	4	CHEM 260 or 261 or 361	Spring	
Note: Requirements of Major: A student majoring in chemistry is required to complete at least 48 credit hours in courses of chemistry including core/mandatory courses: CHEM 250, CHEM 261, CHEM 270, CHEM 311, CHEM 320, CHEM 330, CHEM 350, CHEM 361, CHEM 370 and any three 400 level chemistry course. Requirements of Minor: Minor in Chemistry is open to students having basic science background at Intermediate and A Level. Students are required to take course of at least 24 credit hours of 200 level or above by selecting at least one course from each area of chemistry (organic and biochemistry, inorganic and analytical chemistry, and physical chemistry). Equivalences (if any) Or Transfer Credits: This is according to university policy. Cross-listed Courses: Chem/ENVR-340, Chem/ENVR-342, Chem/ENVR 320 Courses for Gen.Education: All 100 and 200 level courses (please look at the prerequisites carefully). Courses for non-science students: CHEM 100 Recommendation During their Freshman and Sophomore years, students are recommended to take the following courses which will prepare them for higher level courses: CHEM 150, CHEM 160, CHEM 170, CHEM 173, CHEM 250, CHEM 260, CHEM 261 and CHEM 262. Taking these courses at the initial stages will help them to complete the degree on time with sufficient number of courses in their desired specializations. Recommended Elective Courses: In order to gain sufficient mastery of the subject, a student majoring in chemistry is advised to take as many elective courses as he/she can, giving special attention to his/her desired area of specialization, and selecting at least one course from each area of chemistry (organic and biochemistry, inorganic and analytical chemistry, and physical chemistry).					CHEM 464	4	CHEM 260 or 261 or 361	Fall	
					CHEM 465	4	CHEM 330 or 361	Spring	
					Physical Chemistry				
					CHEM 271	3	CHEM 150 or 170 or 270	Fall	
					CHEM 470	3	CHEM 261 or 270	Spring	
					CHEM 471	3	CHEM 271 or 370	Fall	
					CHEM 473	4	CHEM 270 or 370	Fall	
					Other Electives				
					CHEM 262	3	CHEM150, 160, 170	Spring	
					CHEM 340	3	Sopho & above	Fall/ Spring	ENVR 340
					CHEM 342	3	Sopho & above	Spring	ENVR 342
					CHEM 372	3	CHEM 250, 261, 270	Spring	
					CHEM 421	4	CHEM 260 or 261 or 330	Spring	
					Total Credits	66			

Specializations & Career opportunities: 1. Organic and biochemistry, 2. Inorganic and analytical chemistry, and 3. Physical chemistry. Career opportunities are in all chemical industries such as cement, fertilizers, cosmetics, pesticides and insecticides, paints and varnishes, textiles and leather, packaging, food and beverages, drug testing laboratories, forensics, water and environmental regulatory authorities including irrigation and agriculture, pharmaceutical and drug manufacturing, paper and pulp industry and in higher education/teaching,

Roadmap for Chemistry Majors

Catalog year: 2021

Freshmen year					
Fall 2021 (1st Semester)			Spring 2022. (2nd Semester)		
Course	Credit Hr	Remarks/Status	Course	Credit Hr	Remarks/Status
*UNIV100	3		CHEM 170, 173, 261	4,3,4	Students who want to take Chem-150, 160, and 170 are advised to take during the summer semester.
**GEC			GEC		
GEC			GEC		
GEC			GEC		
GEC			CHEM 150, 250	4,4	
Sophomore year					
Fall 2022 (3rd Semester)			Spring 2023 (4th Semester)		
CHEM 160, 270, 271	4,4,3		<u>CHEM 261</u>	4	300 level courses may also be taken
GEC			GEC		
GEC			GEC		
<u>CHEM 250</u>	4		CHEM 260, 262	4	
GEC			<u>CHEM 270</u>	4	
Junior year					
Fall 2023 (5th Semester)			Spring 2024(6th Semester)		
<u>CHEM 370</u>	4		<u>CHEM 350</u>	4	400 Level courses may also be taken
<u>CHEM 311</u>	4		<u>CHEM 330</u>	4	
<u>CHEM 320</u>	4		<u>CHEM 361</u>	4	
**EC	4		**EC	4	
Senior year					
Fall 2024 (7th Semester)			Spring 2025(8th Semester)		
CHEM 413	4	Students are advised to take as many elective courses of their area of interest as possible	CHEM 421	4	Students are advised to take as many elective courses of their area of interest as possible
CHEM 454	3		CHEM 450	4	
CHEM 455	4		CHEM 453	3	
CHEM 464	4		CHEM 462	4	
CHEM 471	3		CHEM 465	4	
CHEM 473	4		CHEM 470	3	
Total Credits:	130				

Important Notes/Guidelines:

Students are strongly advised to complete GECs by the end of sophomore year and core courses (Chem-250, Chem-261, Chem-270, Chem-311, Chem-320, Chem-330, Chem-350, Chem-361, Chem-370) by the end of junior year.

In the senior year they should take as many elective courses as possible.

*GEC: General Education Course

** CC: Core Courses are underlined and bold above

*** EC: Elective Course, 300 & 400 level courses should be taken such as Chem-331, Chem-340, Chem-342, Chem-372

Mission of the Department

The Department will strive and assist in the preservation, creation, application and dissemination of knowledge through its efforts in teaching, research and community service in the discipline of chemistry. It will serve to enhance the well-being of the citizens of Pakistan and the world community.

Vision of the Department

The Department envisions to be acknowledged nationally and internationally as a prime seat of learning and research in the field of chemical sciences through student training, scholarly output and contribution to community and by maintaining consistently standards of excellence.

There are many opportunities for pursuing higher education in the field of chemistry both within the country and abroad. The Department of Chemistry FCCU offers MPhil and PhD Programs, and a postgraduate diploma in Food in Drug analysis.

- MPhil Chemistry
- PhD Chemistry
- Postgraduate Diploma in Food & Drug Analysis



Career opportunities are in all chemical industries such as cement, fertilizers, cosmetics, pesticides and insecticides, paints and varnishes, textiles and leather, packaging, food and beverages, drug testing laboratories, forensics, water and environmental regulatory authorities including irrigation and agriculture, pharmaceutical and drug manufacturing, paper and pulp industry and in higher education/teaching.

