

BS 04 Years & Associate Degree in Chemistry

Course Title	Course Code	Course Type	Credit Hour
Semester 1			
Functional English	GENG-101	General	<u>3</u>
Civics and Community Engagement	GCCE-101	General	<u>2</u>
Islamic Studies / Ethics (for Non-Muslims)	GISL-101 / GETH-101	General	<u>2</u>
Fundamental Concepts of Chemical Bonding	Chem-116	Major	<u>2</u>
Physical Chemistry-I	Chem-101	Major	<u>2</u>
Tarjuma-e-Quran	HQ-001	Compulsory	<u>0</u>
Science Wonders Around Us (NS)	NSW-106	General	<u>3</u>
Fundamental Concepts of Chemical Bonding-Lab	Chem-117	Major	<u>1</u>
Physical Chemistry-I, Lab.	Chem-102	Major	<u>1</u>
			Total Credit Hours 16
Semester 2			
<u>GEN(AH)</u>		General	<u>2</u>
Quantitative Reasoning (I)	GQR-101	General	<u>3</u>
Entrepreneurship	GENT-101	General	<u>2</u>
Ideology and Constitution of Pakistan	GICP-101	General	<u>2</u>
Basic Organic Chemistry-Lab	131-132	Major	<u>3</u>
Physical Chemistry-II Thermodynamics	103	Major	<u>3</u>
Tarjuma-e-Quran	HQ-002	Compulsory	<u>1</u>
			Total Credit Hours 16
Semester 3			
Applications of Information and Communication Technologies	GICT-201	General	<u>3</u>
Expository Writing	GENG-201	General	<u>3</u>
Introduction to Analytical Chemistry-Lab.	246-247	Major	<u>3</u>
Reaction Mechanism	231	Major	<u>3</u>
Metallurgical Aspects of Inorganic Compounds	216	Major	<u>3</u>
Tarjuma-e-Quran	HQ-003	Compulsory	<u>0</u>
Water Treatment and Cleansers, Lab.	261-262	Major	<u>3</u>
Introductory Biochemistry-Lab.	276-277	Major	<u>3</u>
Introduction to Green Chemistry-Lab.	291-292	Major	<u>3</u>
			Total Credit Hours 24
Semester 4			
<u>GEN(SS)</u>		General	<u>3</u>
Quantitative Reasoning (II)	GQR-202	General	<u>3</u>
Stereochemistry, Lab.	232-233	Major	<u>3</u>
Chemistry of f-block Elements-Lab.	217-218	Major	<u>3</u>
Chemical Kinetics-Lab.	201-202	Major	<u>3</u>
Tarjuma-e-Quran	HQ-004	Compulsory	<u>1</u>
			Total Credit Hours 16
Semester 5			
Interdisciplinary		Interdisciplinary	<u>3</u>
Interdisciplinary		Interdisciplinary	<u>3</u>
Chromatographic Techniques-I-Lab.	346-347	Major	<u>3</u>
UV & IR Spectroscopy, Lab.	331-332	Major	<u>3</u>
Electrochemistry, Lab.	301-302	Major	<u>3</u>
Tarjuma-e-Quran	HQ-005	Compulsory	<u>0</u>
Unit Operations and basic chemical industries-Lab.	361-362	Major	<u>3</u>
Carbohydrate-Lab.	376-377	Major	<u>3</u>
Introduction to Green Solvents-Lab.	391-392	Major	<u>3</u>
			Total Credit Hours 24
Semester 6			
Interdisciplinary		Interdisciplinary	<u>3</u>
Interdisciplinary		Interdisciplinary	<u>3</u>
Introduction to Spectral and Separation Techniques	350	Major	<u>3</u>
Analytical Separation Tools-I, Lab.	348-349	Major	<u>3</u>
Coordination Chemistry, Lab.	316-317	Major	<u>3</u>
Tarjuma-e-Quran	HQ-006	Compulsory	<u>1</u>
Unit Processes and Raw Materials-Lab.	363-364	Major	<u>3</u>
Allied Chemical industries	365	Major	<u>3</u>
Protein, Lab.	378-379	Major	<u>3</u>
Immunology	380	Major	<u>3</u>
Applications of Green Solvents-Lab.	393-394	Major	<u>3</u>
Green Chemistry and Sustainable Development Goals	395	Major	<u>3</u>
			Total Credit Hours 34
Semester 7			
Fieldwork / Intership	Chem-400	Major	<u>3</u>
major		Major	<u>3</u>
{Organic} Molecular Rearrangements, Lab. (2 + 1), Oxidation & Reduction, Lab. (2 + 1), NMR Spectroscopy, Lab. (2 + 1), Reaction Mechanism II (3+0)]	431-437	Major	<u>12</u>
{Inorganic} Periodicity, Lab. (2 + 1), Reagents & Solvents in Inorganic Chemistry, Lab. (2 + 1), Environmental Aspects of Inorganic Compounds (2+1), Pi-Acceptor Ligands (3+0)	416-422	Major	<u>12</u>
{Physical} Colloids, Lab. (2 + 1), Solution Chemistry, Lab. (2 + 1), Surface Chemistry, Lab. (2 + 1), Quantum Chemistry (3 + 0)	401-407	Major	<u>12</u>
Tarjuma-e-Quran	HQ-007	Compulsory	<u>0</u>

{Analytical} Electroanalytical Techniques-1, Lab. (2+1), Molecular Absorption Spectroscopy, Lab. (2+1), [Atomic Spectrochemical Analysis, Lab. (2+1), (Hyphenated Chromatographic Techniques (3+0)]	446-452	Major	<u>12</u>
{Applied} Fuel Chemistry & Renewable Energy Resources, Lab. (2+1), Steel Industry and Metal Finishing, Lab. (2+1), [Separation and Spectral Techniques, Lab. (2+1), (Processing Industries (3+0)]	461-467	Major	<u>12</u>
{Bio} Lipid Biochemistry, Lab. (2 + 1), Enzymes, Lab. (2 + 1), Human physiology, Lab. (2 + 1), Nutrition 3 + 0]	476-482	Major	<u>12</u>
			Total Credit Hours 78
Semester 8			
Capstone Project	CHEM-499	Major	<u>3</u>
{Analytical} Electroanalytical Technique-II, Lab. (2+1), Thermoanalytical Techniques, Lab. (2+1), Environmental Chemistry, Lab. (2+1), Compound and Molecular Specific Analysis-II (3+0)	453-459	Major	<u>12</u>
{Organic} Mass Spectrometry & natural products, Lab. (2+1), Organic Synthesis, Lab. (2+1), Heterocyclic Chemistry and Organometallic Chemistry, Lab. (2+1), Reaction Mechanism III (3+0)	438-444	Major	<u>12</u>
{Inorganic} Atomic Spectroscopy, Lab. (2+1), Bio-Inorganic Chemistry, Lab. (2+1), Inorganic Polymers, lab. (2+1), Organometallic Chemistry (3+0)]	423-429	Major	<u>12</u>
{Physical} Polymer Chemistry, Lab. (2+1), Photochemistry, Lab. (2+1), Spectroscopy, Lab. (2+1), Nuclear Chemistry (3+0)]	408-414	Major	<u>12</u>
Tarjuma-e-Quran	HQ-008	Compulsory	<u>1</u>
{Applied} Polymers and its Applications, Lab. (2+1), Agro-industries, (2+1), Textile Industries, Lab. (2+1), Industries and Environment (3+0)]	468-474	Major	<u>12</u>
{Bio} Molecular Biology, Lab. (2+1), Microbiology & Drug Metabolism, Lab. (2+1), Clinical biochemistry, Lab. (2+1), Biochemical Techniques (3+0)]	483-489	Major	<u>12</u>
			Total Credit Hours 76
Signature			