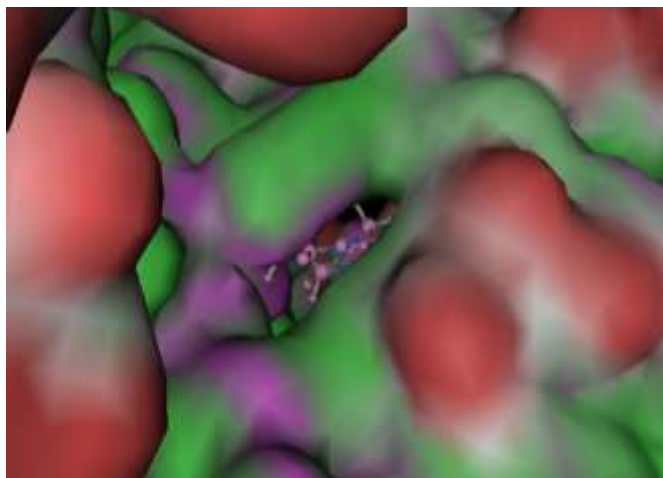


SHIV NADAR UNIVERSITY



Department of Chemistry School of Natural Sciences



Minor in Chemistry

Chemistry forms the link between the fundamental principles governing the nature of the universe and the science of life. Chemistry education at SNU provides focus on a variety of inter-disciplinary areas, spanning different scientific disciplines, *e.g.* Materials Science, Bioinformatics, Environmental Sciences, or Chemical Biology, as well as non-traditional areas in the arts and humanities.

A Chemistry Minor provides a broad background in chemical principles, that can serve as a stepping stone to further in-depth study in related areas that build upon this background. The Chemistry Minor curriculum at SNU is divided into two stages: introductory general chemistry, and foundation courses providing breadth across sub-disciplines. Since chemistry is an experimental science, substantial laboratory work is an integral part of almost all our Chemistry courses.

Introductory or General Chemistry: The introductory general chemistry courses provide a common grounding in basic chemical concepts for students with diverse backgrounds, develop basic mathematical and laboratory skills, and prepare students for the foundation courses, allowing for a period for consolidation of chemical concepts, mathematical and laboratory skills. For students pursuing a Chemistry Minor, the introductory chemistry courses provide preparation for the foundation course work, ensuring that students know basic chemical concepts such as stoichiometry, states of matter, atomic structure, molecular structure and bonding, thermodynamics, equilibria, and kinetics. Students also need to be competent in basic laboratory skills such as safe practices, keeping a notebook, use of electronic balances and volumetric glassware, preparation of solutions, chemical measurements using pH.

Foundation Courses: Foundation courses provide breadth and lay the groundwork for more in-depth course work. Elective in-depth courses in areas of the student's interests build upon these foundations and develop critical thinking and problem-solving skills.

Laboratory Experience: The chemistry laboratory experience at SNU includes synthesis of molecules; measurement of chemical properties, structures, and phenomena; hands-on experience with modern analytical instrumentation; and computational data analysis and modelling. All laboratory programs are conducted in a safe environment that includes adherence to national and state regulations regarding hazardous waste management and laboratory safety, including facilities for chemical waste disposal, safety information and reference materials, and personal protective equipment available to all students and faculty. The chemistry laboratories at SNU are equipped with functioning fume hoods, safety showers, eyewashes, first aid kits, and readily available fire extinguishers. Students are trained in modern chemical safety, to understand responsible disposal techniques, understand and comply with safety regulations, understand and use material safety data sheets (MSDS), recognize and minimize potential chemical and physical hazards in the laboratory, and know how to handle laboratory emergencies effectively.

Problem-Solving Skills: As part of the SNU experience, students will be expected to develop the ability to define problems, develop testable hypotheses, design and execute experiments, analyze data using statistical methods, and draw appropriate conclusions. The Chemistry Minor curriculum provides ample opportunities for developing both written and oral communication skills, as well as team skills. Our instructional programs incorporate team experiences in classroom and laboratory components of the chemistry curriculum.

Students at SNU may earn a Minor in Chemistry upon successfully completing the bulleted courses below (note that courses from among the following list taken as part of a student's non-Chemistry Major requirement also count towards the Minor in Chemistry).

Minor in Chemistry

Semester	Course	Course Title	L:T:P	Required for Minor	Prerequisites	Minor Credits
1 (MSN)	CHY111	Chemical Principles	3:1:1	•	None	5
2 (SPR)	CHY122	Basic Organic Chemistry I	2:1:1	•	CHY111	7
	CHY142	Main Group Chemistry	3:0:0	•	CHY111	
3 (MSN)	CHY211	Chemical Equilibrium	3:1:1	•	CHY111	9
	CHY212	Chemical Applications of Group Theory	2:0:0		CHY111, MAT101/103/102/104	
	CHY213	Physical Methods in Chemistry	3:0:1	•	CHY111, CHY122	
	CHY221	Basic Organic Chemistry II	2:1:1		CHY111, CHY122	
4 (SPR)	CHY222	Chemistry of Carbonyl Compounds	2:1:1		CHY122, CHY221	
	CHY241	Electrochemistry	3:0:1		CHY111, CHY211	
	CHY242	Coordination Chemistry	3:0:1		CHY111, CHY211	
	CHY352	Advanced Biochemistry	3:0:0		CHY111, CHY122, BIO113	
5 (MSN)	CHY311	Chemical Binding	3:0:1		CHY111, calculus, physics	
	CHY313	Molecular Spectroscopy	3:0:1		CHY213, CHY311	
	CHY 321	Named Organic Reactions and Mechanism	3:0:0		CHY221	
	CHY323	Organometallic Chemistry	3:0:0		CHY221, CHY242	
6 (SPR)	CHY322	Organic Reaction and Synthesis	3:0:0		CHY221	
	CHY332	Informatics & Molecular Modelling	2:0:1		CHY122, CHY211, MAT084, BIO101	
	CHY342	Chemistry of Solids and Surfaces	3:0:0		CHY111, physics	
	CHY346	Bio-inorganic chemistry	3:0:0		CHY242	
7 (SPR)	CHY413	Applications of analytical techniques	3:0:0		CHY321	3
		Electives	3:0:0	•		
	CHY499	Senior Project	0:0:6			
8 (SPR)	CHY499	Senior Project	0:0:6			
	CHY421	Organic Synthesis	3:0:0		CHY111, CHY122	
		Electives	3:0:0			
Graduation		Total Credits		24		24