

Curriculum Structure

(Applicable to Freshmen Admitted in the 2023 Academic Year)

REQUIRED COURSES (10 CREDITS)

SEMINAR IN ORGANIC CHEMISTRY (I) (1)	SEMINAR IN INORGANIC CHEMISTRY (I) (1)	SEMINAR IN PHYSICAL CHEMISTRY (I) (1)	SEMINAR IN ANALYTICAL CHEMISTRY (I) (1)
SEMINAR IN ORGANIC CHEMISTRY (II) (1)	SEMINAR IN INORGANIC CHEMISTRY (II) (1)	SEMINAR IN PHYSICAL CHEMISTRY (II) (1)	SEMINAR IN ANALYTICAL CHEMISTRY (II) (1)
SEMINAR IN ORGANIC CHEMISTRY (III) (1)	SEMINAR IN INORGANIC CHEMISTRY (III) (1)	SEMINAR IN PHYSICAL CHEMISTRY (III) (1)	SEMINAR IN ANALYTICAL CHEMISTRY (III) (1)
SEMINAR IN ORGANIC CHEMISTRY (IV) (1)	SEMINAR IN INORGANIC CHEMISTRY (IV) (1)	SEMINAR IN PHYSICAL CHEMISTRY (IV) (1)	SEMINAR IN ANALYTICAL CHEMISTRY (IV) (1)

At least 6 credits are required for the following courses (3/3):

- * INDEPENDENT STUDIES IN SYNTHETIC METHODS (I)(II)
- * INDEPENDENT STUDIES IN NATURAL PRODUCTS SYNTHESIS(I)(II)
- * INDEPENDENT STUDIES IN MATERIALS CHEMISTRY(I)(II)
- * INDEPENDENT STUDIES IN CHEMICAL BIOLOGY (I) (II)
- * INDEPENDENT STUDIES IN SYNTHESIS AND BIOORGANIC CHEMISTRY (I)(II)
- * INDEPENDENT STUDIES IN ORGANIC SYNTHESIS (I)

At least 6 credits are required for the following courses (3/3):

- * INDEPENDENT STUDIES IN METAL CLUSTERS(I)(II)
- * INDEPENDENT STUDIES IN INORGANIC REACTIONS(I)(II)
- * INDEPENDENT STUDIES IN HOMOGENOUS CATALYSIS(I)(II)
- * INDEPENDENT STUDIES IN INORGANIC STRUCTURES(I)(II)
- * INDEPENDENT STUDIES IN CHEMISTRY OF NANOMATERIALS (I)(II)
- * INDEPENDENT STUDIES IN INORGANIC CATALYSIS (I) (II)
- * INDEPENDENT STUDIES IN COMPUTATIONAL CHEMISTRY(I)(II)

At least 6 credits are required for the following courses (3/3):

- * INDEPENDENT STUDIES IN CATALYSIS(I)(II)
- * INDEPENDENT STUDIES IN GAS/SOLID INTERACTIONS(I)(II)
- * INDEPENDENT STUDIES IN SOLID STATE NMR OF BIOLOGICAL SYSTEMS(I)(II)
- * INDEPENDENT STUDIES IN NANOSCALE FORCE MEASUREMENT(I)(II)
- * INDEPENDENT STUDIES IN AEROSOLS AND BIOMEDICAL NANOMATERIAL SCIENCES(I) (II)
- * INDEPENDENT STUDIES IN LASER CHEMISTRY (I)(II)
- * INDEPENDENT STUDIES IN SPECTRUM (I)(II)

At least 6 credits are required for the following courses (3/3):

- * INDEPENDENT STUDIES IN ATOMIC SPECTROMETRY(I)(II)
- * INDEPENDENT STUDIES IN ORGANIC MASS SPECTROMETRY(I)(II)
- * TRACE BIOANALYSIS FOR RESEARCH TRAINING(I)(II)
- * INDEPENDENT STUDIES IN ULTRA-MICRO RESEARCH FOR NANO-PARTICLE, DRUG, BIOCHEMISTRY AND ENVIRONMENT(I)(II)
- * INDEPENDENT STUDIES IN SURFACE CHEMISTRY AND NANOMATERIALS (I)(II)
- * INDEPENDENT STUDIES IN MICROSCOPIC IMAGE ANALYSIS(I)(II)

ELECTIVE COURSES (15 CREDITS)

At least 9 credits are required for the following courses			
ADVANCED ORGANIC CHEMISTRY (3)	ADVANCED ORGANOMETALLIC CHEMISTRY (3)	QUANTUM CHEMISTRY (I)(II) (3/3)	ELECTROANALYTICAL CHEMISTRY (3)
SPECTROMETRIC IDENTIFICATION OF ORGANIC COMPOUNDS (3)	APPLICATION OF ORGANOMETALLIC COMPOUNDS (3)	ADVANCED CHEMICAL THERMODYNAMICS (3)	PRINCIPLE OF MASS SPECTROMETRY (3)
NATURAL PRODUCT SYNTHESIS (3)	X - RAY CRYSTALLOGRAPHY (3)	ADVANCED CHEMICAL KINETICS (3)	MASS SPECTROMETRY (3)
PHYSICAL ORGANO CHEMISTRY (3)	ELECTROCHEMISTRY (3)	INTRODUCTION TO NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY (3)	PROTEOMICS MASS SPECTROMETRY (3)
POLYMERIC MATERIALS CHEMISTRY (3)	REACTION MECHANISMS OF ORGANOMETALLIC CHEMISTRY (3)	ELEMENTARY PRINCIPLE AND APPLICATIONS OF MAGNETIC RESONANCE MICRO-IMAGING(3)	SPECTROCHEMICAL ANALYSIS (3)
REACTIVE MOLECULES (3)	ADVANCED INORGANIC CHEMISTRY (3)	SURFACE CHEMISTRY (3)	TECHNIQUES OF CHEMICAL & BIOCHEMICAL SEPARATION (3)
BIOORGANIC CHEMISTRY (3)	PHYSICAL METHODS IN INORGANIC CHEMISTRY (3)	MOLECULAR MODELING (3)	TECHNIQUES OF CHEMICAL SEPARATION AND APPLICATIONS (3)
ORGANIC FREE RADICAL CHEMISTRY (3)	INORGANIC COORDINATION CHEMISTRY (3)	STATISTICAL MECHANICS (3)	INDEPENDENT STUDIES IN TEACHING AND COURSE DESIGN (I) (II) (1/1)
ANTICANCER DRUGS-SYNTHESIS, DESIGN AND MECHANISM OF ACTION (3)	POLYMER CHEMISTRY (3)	INNOVATION, INVENTION, AND THE PATENT RIGHTS (3)	SPECIAL LECTURES ON APPLIED CHEMISTRY (3)
HETEROCYCLIC CHEMISTRY(3)	ADVANCED BIOINORGANIC CHEMISTRY (3)	ADVANCED MOLECULAR SPECTROSCOPY (I) (II) (3/3)	NANOMATERIALS APPLIED ON BIOMEDICINE (3)
MODERN ORGANIC SYNTHETIC STRATEGIES (3)	MICROSTRUCTURAL CHARACTERIZATION OF MATERIALS (3)	BIOANALYTICAL CHEMISTRY (3)	CHEMICAL ANALYSIS FOR MICRO-CONTAMINATION IN SEMICONDUCTOR MANUFACTURING (3)
	APPLIED SPECTROSCOPY (3)	AN OVERVIEW OF SCANNING PROBE MICROSCOPY(3)	
	SPECIAL TOPIC: HETEROGENEOUS CATALYSIS (3)	PROGRAM APPLICATIONS FOR CHEMICAL EXPERIMENTS (3)	
	ELECTRONIC PROPERTIES OF MOLECULES AND SOLID STATES (3)	INTRODUCTION OF OPTICAL MICROSCOPY (3)	
	Special Topics in Electron Transfer (3)	FUNDAMENTALS OF AEROSOL SCIENCES (3)	LASER CHEMISTRY (3)
		BIOMEDICAL SCIENCES OF PM2.5 AEROSOLS (3)	INSTRUMENT DESIGN (3)