MANIPAL UNIVERSITY
JAIPUR

ACCREDITED WITH GRADE A+ NAAC

nirf
Rankings 2025
University: 58 | Overall 98
Engineering: 58 | Management: 81
Architecture: 21 | Law: 32

Bachelor of Science (B.Sc)

(Honours/Honours with Research)

Chemistry

Admission 2026-27

About the program

The Bachelor of Science (Honours/Honours with Research) in Chemistry is a comprehensive four-year undergraduate program offered by the Department of Chemistry, Manipal University Jaipur. The program is designed in alignment with the National Education Policy (NEP) 2020 and structured under the UGC's Curriculum and Credit Framework (CCF), ensuring flexibility, multidisciplinary exposure, and academic rigor. The curriculum provides a strong foundation in core areas of chemistry—including organic, inorganic, physical, and analytical chemistry—supported by extensive hands-on laboratory training, research projects, multidisciplinary electives, skill enhancement courses, and value-added components. Emphasis is placed on experiential learning through laboratory experiments, instrumental analysis, computational chemistry tools, and project-based assignments. The primary objectives of the program are to deliver broad and rigorous training in chemistry at the undergraduate level, nurture scientific curiosity and innovation, and develop strong experimental, analytical, and problem-solving skills. The program aims to produce graduates who are well-grounded in the fundamental principles of chemistry and capable of applying their knowledge across academic, industrial, environmental, and interdisciplinary domains. Students opting for the Honours with Research track undertake a supervised research project in the final semester, gaining early exposure to independent research. This prepares them for higher studies, doctoral programs, and research-oriented careers in academia, industry, and allied scientific fields.

More about the Department
Scan the QR Code

MANIPAL UNIVERSITY
JAIPUR

Key Highlights of the Program

- **NEP-Aligned Curriculum:** Designed as per NEP 2020 and structured under the UGC's Curriculum and Credit Framework (CCF), ensuring flexibility, multidisciplinary learning, research orientation, and skill enhancement.
- **Program Duration & Exit Flexibility:** Four-year undergraduate program with a flexible exit option after the third year, as per NEP guidelines.
- **Core Chemistry Foundation:** Comprehensive coverage of Organic, Inorganic, Physical, and Analytical Chemistry, including coordination chemistry, spectroscopy, quantum chemistry, reaction mechanisms, and materials chemistry.
- **Laboratory & Instrumental Training:** Extensive hands-on laboratory experience, including modern analytical techniques such as spectroscopy, chromatography, electrochemistry, and material characterization.
- **Research & Project-Based Learning:** Strong emphasis on experiential learning through mini-projects, case studies, and research-based assignments. Students in the Honours with Research track undertake a supervised research project in the final semester.
- **Advanced & Emerging Areas:** Exposure to cutting-edge fields such as Nanochemistry, Green Chemistry, Medicinal Chemistry, Supramolecular Chemistry, Environmental Chemistry, and Computational Chemistry.
- **Interdisciplinary Learning:** Opportunities to integrate knowledge with allied disciplines such as Physics, Biology, Materials Science, Environmental Science, Chemical Engineering and Data Science.
- **Problem-Solving & Critical Thinking:** Development of analytical and problem-solving skills through application-oriented learning and real-world chemical problem analysis.
- **Scientific Communication Skills:** Training in scientific writing, report preparation, and presentations to effectively communicate research outcomes.
- **Preparation for Higher Studies:** Strong academic foundation for pursuing M.Sc., Ph.D., and research careers in chemistry and interdisciplinary domains.
- **Career & Professional Development:** Opportunities for internships, industry exposure, skill-based training, and career guidance for roles in academia, pharmaceuticals, chemicalindustries, research organizations, and environmental sectors.

Degrees awarded

- Students who opt to exit after completing three years of the program and secure 120 credits will be awarded a Bachelor of Science in Chemistry degree.
- Students who secure a minimum of 65% marks (CGPA of 6.5 and above) at the end of the 6th semester, with no backlogs, and earn 160 credits after completion of the fourth year, will be awarded a Bachelor of Science (Honours) in Chemistry degree. Students are required to complete three courses in the major discipline (12 credits) in lieu of a research project in the final semester.
- Students who secure a minimum of 75% marks (CGPA of 7.5 and above) at the end of the 6th semester, with no backlogs, and opt to undertake a research project in the final semester, and earn 160 credits including 12 credits from the research project after completion of the fourth year, will be awarded a Bachelor of Science (Honours with Research) in Chemistry degree.

Prominent Recruiters

- Renew Pvt. Ltd.
- Zen Onco
- Byju's
- Jaro Education
- Canary Agro Chemicals
- Hindustan Zinc Limited

Unique Research and Lab Facilities

- All faculty member from IITs, CSIR, NITs , IIT alumni & strong research profile.
- Collaborations with eminent scientist worldwide.
- Thrust areas of research are Supramolecular, Nanomaterials, Bio-materials, Artificial Molecular catalysis, Dyes sensitize solar cell and Computational and Theoretical research.
- 5 Fully equipped labs with high end instruments for research.
- The department has accesses to most of the modern systems of material characterization like Field Emission Microscope (FESEM), X-ray Diffraction (XRD), UV-Visible Spectroscopy, Photoluminescence (PL) spectroscopy, Thermo-Gravimetric Analysis (TGA), Fourier Transform Infrared (FTIR) spectroscopy GC-MS spectral analysis etc.
- UG/PG student's publications in high impact journals.
- UG Student's publication in high impact journals
- The Department has received external grants of 13 Cr.*

MANIPAL UNIVERSITY
JAIPUR

Career Opportunities

- Higher Education: Candidate may pursue for higher studies and opt national exams like IIT JAM, IISER, JNU, DU, IISc, TIFR, IITs for M.Sc. and MSc-PhD integrated programs.
- Government opportunities: Junior Scientist/Research Assistant/Lab Officer/Lab Instructor. All Govt jobs after graduation.
- Corporate Opportunities: Pharmaceutical companies (Johnson & Johnson, Pfizer, Sanofi, Merck, GSK (GlaxoSmithKline), AstraZeneca, Panacea Biotech Limited, Dr. Reddy's Laboratories Limited) etc in the R&D laboratories, Cosmetic Industries, Agrochemical Industries, Oil and Paint Industries, Polymer and materials Industries, Clinical Research Associate, Quality Controls and Marketing, IPR.
- Startup and Entrepreneur Opportunities in various chemical, Pharmaceutical and material fields.

National and International Collaborations

Collaborations with leading research lab of Government of India and overseas.

The MUJ EDGE (Why MUJ)

- Best in-class infrastructure, including the state-of-the-art research facilities and a modern digital library
- NAAC A+, AICTE, and UGC Accredited Institution
- Research-oriented, well-qualified and internationally renowned faculty
- Well stocked library
- Well-equipped laboratories with ultramodern infrastructural facilities
- Regular invited talks from experts
- Student seminars, project work and guest lectures by eminent speakers
- Placement assistance program
- Regular Industrial exposure to students with emerging technologies in chemical companies
- Participation in technical events, sports and other cultural activities to showcase their talents
- Collaborations with prestigious institutions in India and abroad
- Curriculum based on CSIR-NET and GATE syllabus
- Recruitment opportunity in research project/PhD
- Laboratory infrastructure: FTIR, GC-MS, Fluorometer, CO2 Incubator, HPLC, AAS, Centrifuge and many more.

MANIPAL UNIVERSITY
JAIPUR

Placements Statistics

- Highest package 11 LPA in India.
- UG/PG student go for master's and PhD from Foreign Universities like Bonn University Germany, NUS Singapore, NTU Singapore, South Asian University, Loughborough University UK, University of Melbourne Australia, Imperial College London, Fleming College Ontario, Canada etc. and in IITs, NITs, and Central Universities and other reputed universities in India.

Fee structure

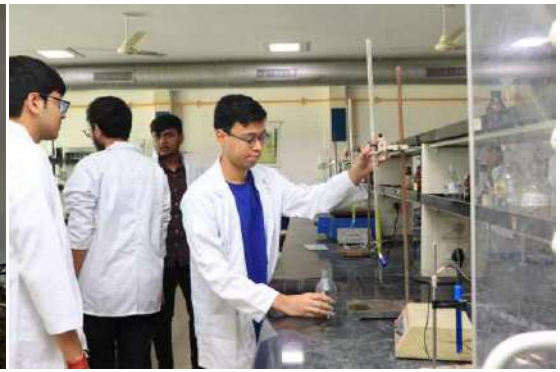
	Tuition fee (p.a.)	Registration Fee (One Time)	Caution Deposit Refundable (One Time)	Total Course Fees (including Caution Deposit)
Indian (INR)	97,000	10,000	10,000	4,08,000
International (USD)	2650	300		10,900

Eligibility

The candidate must have passed 10+2 from recognized board or equivalent qualification as recognized by Association of Indian Universities (AIU) or other competent body with science and/or computer science subjects, with minimum 50% marks in aggregate.

Scholarships

- TMA Pai Merit Scholarships
- Rajasthan Merit Scholarships
- Financial Assistance for Sibling(s)
- Scholarship for "Differently- abled" Students
- Scholarships for wards of Martyrs of Defence Personnel / Para Military Forces
- Scholarships for the wards of Single Mother & Orphan Child
- Scholarships for Sports Persons
- Scholarships for students of Higher Semesters



MANIPAL UNIVERSITY
JAIPUR

Curriculum (Only Scheme)

YEAR	FIRST SEMESTER							SECOND SEMESTER							
	Type	Course Code	Course Name	L	T	P	C	Type	Course Code	Course Name	L	T	P	C
I	*MAJ*	CHY1101	Atomic Structure, Bonding, and	2	1	2	4	*MAJ*	CHY1201	States of Matter and Molecular Properties	2	1	2	4
	MIN	*****	Minor-1	-	-	-	4	*MIN*	*****	Minor-2	-	-	-	4
	MD	*****	MD-1	-	-	-	4	*MD*	*****	MD-2	-	-	-	4
	AEC-1	LN1106	Communicative English	2	0	0	2	*AEC-2*	PHY1240	Report Writing	1	1	0	2
	SEC-1	MAS1122	Fundamentals of Computer	1	0	2	2	*SEC-2*	MAS1221	Logical Reasoning and Competitive	1	1	0	2
	VAC-1	CHY1003	Environmental Science	2	0	0	2	*SEC-3*	MAS1222	Introduction to Python Programming	1	0	2	2
	VAC-2	PES1030	Yoga & Wellness	0	1	2	2	*VAC-3*	MAS1223	Ancient Indian Knowledge System	2	0	0	2
		Total					20		Total					20

Minor -1							Minor -2						
SEM	Course Code	Subject Name	L	T	P	C	SEM	Code	Course Name	L	T	P	C
I	PHY1101	Mechanics	2	1	2	4	II	MAS1203	Ordinary Differential Equations	3	1	0	4
	BIO1107	Cell Biology	2	1	2	4	II	BIO1207	Fundamentals of Biotechnology	2	1	2	4
MD-1							MD -2						
SEM	Course Code	Subject Name	L	T	P	C	SEM	Code	Course Name	L	T	P	C
I	MAS1110	Fundamental of Calculus	3	1	0	4	II	PHY1201	Waves and Optics	2	1	2	4
	BIO1120	Diversity of Life	2	1	2	4	II	BIO1290	Fundamentals of Microbiology	2	1	2	4

YEAR	THIRD SEMESTER							FOURTH SEMESTER						
	Type	Course Code	Subject Name	L	T	P	C	Type	Course Code	Subject Name	L	T	P	C
II	*MAJ*	CHY2101	Reactions of Hydrocarbons and Halogen Derivatives	2	1	2	4	*MAJ*	CHY2201	Main Group Elements-I and Ionic Bonding	3	1	0	4
	MAJ	CHY2102	Thermodynamics and Chemical Equilibrium	2	1	2	4	*MAJ*	CHY2202	Chemical Kinetics and Electrochemistry	3	1	0	4
	MIN	****	Minor-3	-	-	-	4	*MAJ*	CHY220	Reaction Mechanisms and Stereochemistry	3	1	0	4
	MD	****	MD-3	-	-	-	3	*MAJ*	CHY227	Project Based Learning	0	0	0	2
	AEC-3	CHY2170	Scientific Writing	2	0	0	2	*MIN*	****	Minor-4	-	-	-	4
	SEC-4	PHY2140	Basic Instrumentation Skills	2	1	0	3	*AEC-4*	PHY2240	Translation and Linguistic Competence	2	0	0	2
		Total					20		Total					20

Minor -3							Minor -4						
SEM	Course Code	Subject Name	L	T	P	C	SEM	Code	Course Name	L	T	P	C
III	PHY2190	Electromagnetism	3	1	0	4	IV	PHY2290	Heat and Thermodynamics	3	1	0	4
	MAS2124	Probability Distributions and Sampling Theory	3	1	0	4		MAS2225	Statistical Inference	3	1	0	4
	CHE1151	Chemical Process Calculations	3	1	0	4		CHE1251	Chemical Process Industries	3	1	0	4
	BIO2107	Biochemistry	2	1	2	4		BIO2208	Recombinant DNA Technology and	2	1	2	4
	CHY2121	General Chemistry	2	1	2	4		CHY222	Principles of Analytical Chemistry	2	1	2	4

MD-3						
SEM	Course Code	Subject Name	L	T	P	C
III	MAS2125	Multivariable Calculus	2	1	0	3
	PHY2140	Introduction to Astrophysics	2	1	0	3
	CHE*****	Analytical Techniques				3

FIFTH SEMESTER							SIXTH SEMESTER						
Type	Course Code	Subject Name	L	T	P	C	Type	Course Code	Subject Name	L	T	P	C
MAJ	CHY3101	Chemistry of d and f Block Elements	3	1	0	4	*MAJ*	CHY3201	Organometallic Compounds and Industrial Chemistry	3	1	0	4
MAJ	CHY3102	Quantum Chemistry and Statistical Thermodynamic	3	1	0	4	*MAJ*	CHY3202	Principles of Nuclear and Analytical Chemistry	3	1	0	4
MAJ	CHY3103	Structure and Reactivity of Oxygen containing Derivatives	3	1	0	4	*MAJ*	CHY3203	Spectroscopic Techniques	3	1	0	4
MAJ	CHY3130	Chemistry lab-1	0	0	8	4	*MAJ*	CHY3230	Chemistry lab-2	0	0	8	4
MIN	****	Minor-5	-	-	-	4	*MIN*	****	Minor-6	-	-	-	4
		Total				20			Total				20

Minor -5							Minor -6						
SEM	Course Code	Subject Name	L	T	P	C	SEM	Code	Course Name	L	T	P	C
V	PHY3190	Basic Quantum Mechanics	3	1	0	4	VI	PHY3290	Condensed Matter Physics	3	1	0	4
	MAS3126	Applied Statistics	3	1	0	4		MAS3227	Econometrics	3	1	0	4
	CHE1152	Chemical Process	3	1	0	4		MAS3228	Theory of Logical Mathematics	3	1	0	4
	BIO3122	Ethical Issue in IPR	2	1	2	4		CHE1252	Renewable and Non-Renewable Energy Resources	3	1	0	4
	BIO3190	GLP and Biosafety	2	1	2	4		CHY3221	Principles of Industrial Chemistry	2	1	2	4
	CHY3121	Materials Chemistry: Structure, Properties and Applications	2	1	2	4							

YEAR	SEVENTH SEMESTER							EIGHTH SEMESTER						
	Type	Course Code	Subject Name	L	T	P	C	Type	Course Code	Subject Name	L	T	P	C
IV	*MAJ*	CHY4101	Main group elements-II and Introduction to Symmetry	3	1	0	4	*EC/R P*	****	*EC /Research Project*	-	-	-	12
	MAJ	CHY4102	Advanced Physical Chemistry	3	1	0	4	*MIN*	****	Minor-7	-	-	-	4
	MAJ	CHY4103	Organic Synthesis: Methods and Reagents	3	1	0	4	*MIN*	****	Minor-8	-	-	-	4
	MAJ	CHY4104	Applied Chemistry	3	1	0	4							
	MAJ	CHY4130	Chemistry lab-3	0	0	8	4							
			Total				20			Total				20

Minor -7							Minor -8						
SEM	Course Code	Subject Name	L	T	P	C	SEM	Course Code	Subject Name	L	T	P	C
VIII	PHY4290	Nanomaterials and Applications	3	1	0	4		PHY4291	Semiconductors and Optoelectronics	3	1	0	4
	MAS4227	Research Methodology and Scientific Writing	3	1	0	4		MAS4229	Introduction to MATLAB	3	1	0	4
	CHY4221	Forensic Chemistry and Testing Methods	2	1	2	4		CHY4222	Medicinal and Pharmaceutical Chemistry	2	1	2	4
Type	Course Code	Subject Name	L	T	P	C							
EC-1	CHY4201	Molecular Spectroscopy	3	1	0	4							
EC-2	CHY4202	Photochemistry and Pericyclic Reactions	3	1	0	4							
EC-3	CHY4230	Chemistry lab-4	0	0	8	4							

MANIPAL UNIVERSITY
JAIPUR

Admission Process

Application form initiated through our website
admissions.jaipur.manipal.edu

Applicants must submit a completed application form with relevant documents within the due date.

Our counsellors will guide candidates through the admission process, which is as per regulatory requirements.

FAQ

Please visit the FAQ section on our website to know more about the admission process.

Admission Team Contact Details

Hostel Details

For Admission
Scan this QR Code

MANIPAL UNIVERSITY
JAIPUR
(University Under Section 2(f) of the UGC Act)

Dehmi Kalan, Jaipur-Ajmer Expressway, Jaipur, Rajasthan - 303007
admissions@jaipur.manipal.edu | Follow us on :
jaipur.**manipal**.edu | **1800 1020 128**

For Virtual Tour
Scan this QR Code