University of Sassari
Department of Chemical, Physical, Mathematical and Natural Sciences

DEGREE PROGRAMME SYLLABUS – Academic Year 2026/2027

Valid for students matriculating in the A.Y. 2026/2027

Master's Degree Programme in CHEMICAL SCIENCES

(Degree Class LM-54)

The Master's Degree Programme in Chemical Sciences, belonging to the LM-54 class of **Master's Degrees in Chemical Sciences**, is established at the University of Sassari.

Programme Learning Outcomes

The programme aims to train graduates with a solid foundational and professional background tailored for employment in the main sectors of Chemistry. Upon completion of their studies, graduates will:

- possess a solid foundational cultural background in the various sectors of chemistry, alongside advanced scientific and operational training in the core fields characterizing this degree class;
- have a strong command of the scientific method of investigation;
- possess a sound knowledge of supporting mathematical and computer science tools;
- be able to use, in both written and oral form, at least one European Union language other than Italian, with specific reference to disciplinary vocabulary;
- be capable of working with a high degree of autonomy, assuming significant responsibility for projects and organizational structures.

Graduates will carry out activities related to the promotion and development of scientific and technological innovation, as well as the management and design of technologies. They will also be qualified to hold positions of high responsibility in industry, environment, agri-food, materials, healthcare, cultural heritage, and public administration sectors.

Duration and Organization of Studies The degree programme has a duration of two years. The total workload required is calculated at 120 university credits (CFUs). One credit (CFU) is equivalent to 25 hours of student workload, divided between activities organized by the Degree Programme (assisted hours) and individual study hours. Specifically, one credit of lectures or theoretical tutorials corresponds to 8 assisted hours, whereas one credit of laboratory practicals corresponds to 14 assisted hours. **Attendance at laboratory**

practicals is mandatory. The educational and training activities of the Degree Programme are organized on a semester basis. Therefore, the academic year is divided into two periods during which lectures and tutorials are held, interspersed with teaching recesses during which examination sessions are scheduled.
Academic Calendar:
First Semester: October 1, 2026 – January 31, 2027
Second Semester: March 1, 2027 – June 10, 2027
Examination Sessions Calendar:
1st Session (two exam dates): February 1 – February 28, 2027
2nd Session (two exam dates): June 15 – July 15, 2027
3rd Session (two exam dates): September 1 – September 30, 2027

Admission Requirements

To be admitted to the Master's Degree Programme in Chemical Sciences, applicants must hold a Bachelor's Degree (Class 21 or Class L-27) or another recognized eligible qualification obtained abroad. Admission is also granted to students holding other degrees characterized by a sound foundational scientific knowledge in mathematics and physics, and adequate training in the various chemical disciplines: general and inorganic chemistry, organic chemistry, physical chemistry, analytical chemistry, and materials chemistry.
For all students, admission is subject to meeting the requirements defined in the degree programme regulations; specifically: at least 80 CFUs overall within the following Scientific-Disciplinary Sectors (SSD): PHYS-01/A÷06/B, MATH-01/A÷05/A, MATH-01/B÷03/B, INFO-01/A, BIOS-07/A÷09/A, IIND-03/C, IMAT-01/A, CHEM-01/A÷08/A, CHEM-01/B÷07/B, CHEM-07/C (with a minimum of 40 CFUs within the SSDs CHEM-01/A÷08/A, CHEM-01/B÷07/B, CHEM-07/C). Knowledge of the English language at a B1 level (or higher) is required, certified either by a language proficiency qualification of an equivalent level obtained during a university course, or verified through an interview.
Students who do not hold a Bachelor's Degree in Chemistry (Class 21 or L-27) or another recognized eligible qualification must attach a certification or self-certification proving they meet the required criteria upon pre-enrolment on the portal https://uniss.esse3.cineca.it/Home.do. A committee appointed by the Degree Programme Board will verify the admission requirements for candidates whose applications are received by September 8, 2026.
The assessment of personal preparation, which is a mandatory requirement for enrolment in the Master's Degree in Chemical Sciences, will be carried out via an interview. Participation in this interview is also extended to conditionally enrolled students (sub-condizione) who expect to graduate from their Bachelor's degree by December 31, 2026. Those who have obtained (or will obtain by December 31, 2026) a degree in Chemistry (Class 21 or Class L-27) are exempt from the interview, provided they meet the previously specified English language requirements.
Conditionally admitted candidates who fail to graduate and formalize their enrolment by January 15, 2027, will forfeit their right to matriculate. **All candidates must submit a pre-enrolment application** according to the procedures indicated online at https://uniss.esse3.cineca.it/Home.do.
The interview will take place at the Department of Chemical, Physical, Mathematical and Natural Sciences (Didactic Building, via Vienna 2) or online on **September 15, 2026**, at **9:30 AM**.

Part-Time Enrolment
Students who feel they can dedicate only part of their time to study may choose part-time enrolment. Part-time students are permitted to complete the requirements for obtaining the degree over a longer period, up to a maximum of double the standard duration, without incurring "past regular vocational timeline" (fuori corso) status.

"PA 110 e lode" Project

The Master's Degree Programme in Chemical Sciences participates in the "PA 110 e lode" project aimed at public and private sector employees, as reported at the link https://www.uniss.it/it/didattica/offerta-formativa/pa-110-e-lode. For students participating in the project, teaching is delivered via E-learning and Blended learning modalities. Attendance at laboratory practicals remains mandatory.

International Double Degree Programme

Within the Master's Degree Programme, an international curriculum named ChemTech is available (Sassari - Master's Degree in Chemical Sciences, Lisbon - Master in Molecular Science and Engineering), established in agreement with the Instituto Superior Técnico of the University of Lisbon.
A designated number of students, selected by both Universities, will have the opportunity to access this international pathway, which includes a one-year mobility period (second year) at the partner University. The objective is to acquire a set number of credits through exams and experimental research aimed at the preparation of the degree thesis.
At the end of the international pathway, the student will be awarded a double degree: the Master's Degree in Chemical Sciences (Class LM-54) issued by the University of Sassari, and the Master's Degree "Master in Molecular Science and Engineering" issued by the University of Lisbon.

International Mobility

The Degree Programme promotes international student mobility, allowing students to spend a study period at a foreign university to attend lectures, take exams, or carry out internships, which may also count toward the thesis. Student mobility is supported by Erasmus+ scholarships for both study (SMS) and traineeship (SMT) purposes, within or outside Europe (Ulisse programme). These activities must be authorized in advance by the Department's Erasmus Committee. Students are exempt from attendance requirements for the course units scheduled during their mobility semester. The programme does not entail extra tuition fees and guarantees the recognition of completed studies and credits (CFUs) upon return. Credits earned abroad will be recognized based on the Transcript of Records (ToR) by the Department's Erasmus Committee and will grant bonus points towards the final degree grade and, in some cases, financial incentives.

Study Plan of the Master's Degree Programme in Chemical Sciences (Class LM-54)
Valid for students matriculating in the A.Y. 2026/2027

YEAR I (a.a. 2026/2027)					
First semester					
Type	**SSD**	**COURSE OF STUDY**	**ECTS**		
			Lectures	Tutorials	Laboratory
B	CHEM-01/A	**Analytical Chemistry**	5		1
B	CHEM-02/A	**Physical Chemistry of solid state**	6		

B	CHEM-05/A	**Advanced Organic Chemistry**	6		2
B	CHEM-04/A	**Advanced Polymeric Materials**	5		3
F		English language	2	2	

Second semester					
Type	**SSD**	**COURSE OF STUDY**	**ECTS**		
			Lectures	Tutorials	Laboratory
B	CHEM-03/A	**Advanced Inorganic Chemistry**	4		2
B	CHEM-02/A	**Spectroscopy and Structural Chemistry**	5		1
B	CHEM-01/A	**Applied Electroanalytical Chemistry**	5		1
B	CHEM-03/A	**Organometallic Chemistry**	6		
C	PHYS-07/A	**Radiation Physics with Applications**	3		1

YEAR II

(A.A. 2027/2028)

First semester					
Type	**SSD**	**COURSE OF STUDY**	**ECTS**		
			Lectures	Tutorials	Laboratory
C	CHEM-05/A	**Sustainable Organic Chemistry**	4		2
C		**A course chosen from those listed in Table A (4 ECTS credits)***			
D		**Elective Activities (8 ECTS credits)**			

Second semester					
Type	**SSD**	**COURSE OF STUDY**	**ECTS**		
			Lectures	Tutorials	Laboratory
F		**Orientation and training internship ****	2		
E		**Final Examination 40 ECTS credits*****			

The following course units will be activated during the programme:

TABLE A

SEM	Type	SSD	COURSE OF STUDY	ECTS		
				Lectures	Tutorials	Laboratory
1	C	CHEM-02/A	**Materials and Processes for Next-Generation Batteries**	3		1
1	C	CHEM-02/A	**Physical Chemistry of complex systems**	4		
1	C	CHEM-03/A	**Metals in Medicine**	4		
1	C	CHEM-04/A	**Macromolecular Synthesis Laboratory**			4
2	C	CHEM-03/A	**Materials, Technologies, and Conservation of Cultural Heritage**	4		
2	C	CHEM-02/A	**Elements of Heterogeneous Catalysis**	3		1
2	C	CHEM-01/A	**Environmental Legislation and Analysis**	4		
1	C	CHEM-03/A	**Nanomaterials and their applications**	3		1

Free Choice Learning Activities Chosen by the Student. Throughout the duration of the degree programme, the student must acquire a total of 8 CFUs within autonomous free-choice activities. Examinations with content consistent with the educational project of the programme, relating to official course units taught at the University, will be fully recognized, provided there is no duplication of syllabi. These activities must be approved by the Degree Programme Board.

In the A.Y. 2026/2027, the following elective courses will be offered:

SEM	Type	SSD	COURSE OF STUDY	ECTS		
				Lectures	Tutorials	Laboratory
1	D	CHEM-03/A	**Computational Bioinorganic Chemistry**	2		
2	D	CHEM-04/A	**Green Chemistry of Polymers**	3	1	

Explanatory Notes

*Related and Integrative Activities: Throughout the duration of the degree programme, the student must acquire a total of 14 CFUs within the related activities indicated in the Syllabus.

**A total of 2 CFUs will be awarded for a training and guidance internship activity organized within the framework of the Degree Programme.

***__Final Examination for Degree Award__: The final exam consists of the discussion of a written dissertation concerning the internship and experimental activity carried out by the student. The activities required to complete the degree, culminating in the final dissertation, will take place during the first and second semesters of the second year. The 40 CFUs for the final exam are allocated as follows: research activity and preparatory studies = 32 CFUs; thesis drafting = 6 CFUs; final dissertation defense = 2 CFUs.

The research activity and preparatory studies will take place through an internship and an experimental activity, which are awarded 18 and 14 CFUs respectively. Students will be supported in drafting their thesis through specific preparatory activities. The final examination grade is expressed out of 110, with the potential award of honors (lode).

Types of Learning Activities (TAF): B = Core/Characterizing activities; C = Related or Integrative activities; D = Student's free choice; E = Final examination and foreign language; F = Other activities. Credit Workload Equivalencies: 1 CFU of Lectures = 8 hours of assisted activities; 1 CFU of Theoretical Tutorials = 8 hours of assisted activities; 1 CFU of Laboratory Practicals = 14 hours of assisted activities.

The credits corresponding to the disciplinary course units will be acquired by the student upon passing the exam. Evaluation is graded on a 30-point scale (out of 30).