



Chemistry and Advanced Chemical Methodologies

Master Degree Second Cycle Degree

duration 2 years

ECTS credits 120

Campus Location Camerino

web site

<https://chimica.unicam.it>

School of Science and Technology Chemistry Division

Chemistry Interdisciplinary Project
Building - via Madonna delle Carceri

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Introducing the Master

The Master of Science in Chemistry and Advanced Chemical Methodologies belongs to the Class LM-54 (Scienze Chimiche). It offers the possibility to enhance the chemistry knowledge, especially in the areas that characterize the chemical research in UNICAM. The course provides skills and fundamental knowledge in advanced and innovative chemistry areas, in order to offer an educational qualification competitive on the global labor market.

The Master of Science in Chemistry and Advanced Chemical Methodologies has the 'Chemistry Euromaster Certification', a label that assures an educational quality complying with the European model.

The international agreement with the Superior Technical Institute of Lisbon (Portugal) allows, upon request, our students to obtain the double degree by spending half the time of the course at the partner institution.

The University of Camerino releases the Diploma Supplement to certify the skills attained by the graduate.

Admittance requirements

- Bachelor Degree that satisfies the requirements for access to University Master Degree courses
- List of subjects studied (transcript of records with grades obtained):
- at least 24 ECTS of Mathematics, Physics and Informatics
- 50 ECTS in Chemistry and Biology with adequate credits of laboratory practices.
- Level of language proficiency (strongly recommended): ENGLISH level B2 (Independent User)

A commission will assess the skills necessary to enroll.

Further information on admission rules, pre-admission deadline and other services at <http://international.unicam.it>

Career opportunities

The master degree in Chemistry and Advanced Chemical Methodologies will prepare professionals able to work in labs, industries and public corporations at a manager level, in the following fields:

- public and private research facility;
- chemical industry and manufacturing;
- laboratories for analysis, monitoring and managing the environment and the waste cycle;
- energy production and energy storage industries;
- analytical chemistry laboratories for compliance testing and/or quality assurance;
- private professional practice

Labor statistics

The labor statistics carried out by Alma Laurea in 2020 shows that the employment rate of graduates of the LM54 Class of UNICAM, one year after graduation, is 80%; the comparable national figure is 78.3%.

The University of Camerino signed several agreements and conventions with many institutions, universities and companies both in Italy and abroad to facilitate the mobility of students and their interaction with the labor market.

Classes will be held face to face in the University classrooms but it is possible to attend them also in streaming. Practical activities and laboratories will be organized in different modalities that will be communicated at the due time.

Classes are held in English

Course Structure

There are two Semesters, from October to the end of January, and from March to mid-June. The Winter Exam Session is in February. Teaching activities will be held in a face-to-face mode in the University classrooms. It is possible to attend classes also in remote mode under strict regulation.

Main lines of research/study:

- Analytical and environmental chemistry.
- Inorganic and organic synthesis of molecules of pharmaceutical interest.
- Development of synthetic processes fulfilling the 'green Chemistry' requirements.
- Technological applications of polymers.
- Synthesis and test of advanced materials for the energy production and storage.
- Food chemistry and food analysis.
- Analytical methods development.

The degree program consists of four semesters.

I year **total 60 ECTS**

Students will follow courses that characterize the degree class

I semester ECTS

Advanced Physical Chemistry	8
Advanced Inorganic Chemistry	6
Environmental Chemistry and Laboratory	12
Spectroscopic Methods	8

II semester ECTS

Advanced Analytical Chemistry and laboratory	7
Advanced Organic Chemistry	6
Laboratory of synthesis	8
Optional activities of free choice	5

II year **total 60 ECTS**

The student can differentiate the training path according to his own interests, based on the didactic offer in the thematic areas of the most advanced research sectors, choosing from a list of proposed optional activities

I semester ECTS

Optional activities picked from the proposed list	25
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List of **Optional activities** (5 ECTS each):

Biomonitoring
Energy production and storage
Environmental remediation
Green Organic Chemistry
Bioorganic Industrial Synthesis
Polymer chemistry and applications
Organic Stereochemistry and mechanisms
Inorganic materials and applications
Organometallic Chemistry and catalysis
Supramolecular and Bioinorganic Chemistry
Structural Biology
Laboratory of Applied Analytical Chemistry
Circular Economy and Innovative Materials
Molecular modelling of biopolymers

The student can select the optional activities of free choice even among other active courses of the School of Science and Technology or of the other University Schools.

II semester ECTS

Chemistry project	9
Master Thesis and final elaborate	26

The last semester is devoted to the thesis project that can be carried out in the UNICAM research laboratories or in affiliated companies and organizations.

Some of the possible thesis topics are::

- chemiluminescent materials,
- radiopharmaceuticals,
- organic and inorganic catalysts,
- biologically active molecules,
- green chemistry,
- production and electrochemical storage of energy,
- nanomaterials and innovative materials,
- methods for the analytical determination of environmental and food contaminants,
- applications of natural dyes,
- ... and many others.

Quality Assurance System

UNICAM Quality Management System Certificate ISO 9001:2015 (from AFAQ-France, a French leader and one of the first certification bodies at the global level) guarantees students the quality of services provided.

The guarantee is via a rigorous analysis of internal organizational procedures and the prompt addressing of any weaknesses or shortcomings whether detected or reported by the students themselves.

The Quality Management System includes the following support services for students: orientation and guidance, mentoring, International mobility, Internships and communication.

These integrate with and support the educational activities, so as to contribute to the complete training of the student.

More information

<https://www.unicam.it/didattica/guida-dello-studente>

<https://www.unicam.it/international-student>

