Università di Camerino
Scienze e Tecnologie

CHEMISTRY AND ADVANCED CHEMICAL METHODOLOGIES

Università di Camerino
MASTER OF SCIENCE DEGREE COURSE
II level
class LM-54
duration 2 years
credits 120
university location Camerino

School of Science and Technology
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chemistry division
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Student procedures
prof.ssa Silvia Zamponi (National)
prof.ssa Maura Pellei (International)

Course presentation

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 labour market.

Admission requirements

You have to fulfill at least one of the following requirements:

- degree in Class L27 - Chemical Sciences (ex Ministerial Decree 270) or in Class 21 (ex Ministerial Decree 509/99) or a three-year university degree or another qualification obtained abroad and recognized as valid by the laws in force;

or

- attainement of, at least, 24 credits of MAT-FIS-INF, 50 CFU of CHIM/01-12 and BIO/10 scientific areas with adequate credits of laboratory practices.

A commission will assess the skills necessary to enrol.
The audit will take into account the student's curriculum (integrated, where necessary, from the training program) and an eventual interview that can also be done in telematic mode. More details are available in the guidelines of the degree course.

Professional fields

The master degree in Chemistry and Advanced Chemical Methodologies will prepare a professional 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 practice (register of chemists - sect. A).

Certifications

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

Teaching Language and Conventions

The official language of the course is English.
Thanks to the international agreements with the Instituto Superior Tecnico in Lisbon (Portugal), the Universidad Nacional de Catamarca (Argentina) and Liaocheng University (China) students are allowed to achieve a double degree by spending half of the course time at the partner institution. The University of Camerino certifies the skills attained by the graduate releasing the Diploma Supplement.

HR EXCELLENCE IN RESEARCH

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.

Organization

Courses will be held in Camerino in the facilities of the School of Science and Technology - Chemistry Division.

Study plan

The degree program consists of four semesters. 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 among the proposed optional activities.

I year, total **57 CFU**. The student will follow courses that characterize the degree class

I year, I semester

Advanced Physical Chemistry	6
laboratory of Environmental Chemistry and REACH certification	6
Environmental Chemistry	6
Spectroscopic methods	8

I year, II semester

Advanced Analytical Chemistry and laboratory	8
Advanced Organic Chemistry	6
Laboratory of synthesis	6
Advanced Inorganic Chemistry	6
Optional activities	5

II year, total **63 CFU**.
Optional activities chosen among the proposed

III year, I semester

Optional activities	25

II year, II semester

Chemistry project	10
Thesis and final elaborate	28

Optional Activities:

Sample preparation and analysis	5
Energy production and storage	5
Forensic and Archaeometric Diagnostics	5
Chemometrics	5
Environmental remediation	5
Green Chemistry	5
Bioorganic Industrial Synthesis	5
Polymer chemistry and applications	5
Organic Stereochemistry and mechanisms	5
Inorganic materials and applications	5
Organometallic Chemistry and catalysis	5
Supramolecular and Bioinorganic Chemistry	5
Structural Biology	5

For the free activities the student can also select among other optional courses provided by the School of Science and Technology or by the other University Schools. The last semester is dedicated to the preparation of 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 pigments,
- ... and many others.

After the Master of Science Degree

Labour statistics

The nineteenth employment survey carried out by Alma Laurea in 2016 shows that the employment rate of graduates of the LM54 Class of UNICAM, one year after graduation, is 88.2%; the comparable national figure is 80.6%.
The University of Camerino enabled 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 world of work.

INFORMATION FOR ADMISSIONS, COURSES AND OTHER SERVICES

at www.unicam.it/international

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a.y. 2018/2019