



UNIVERSITA' DEGLI STUDI DI MILANO
PROGRAMME DESCRIPTION - ACADEMIC YEAR 2021/22
MASTER DEGREE
Cultural heritage conservation science (Class LM-11)
Enrolled from 2015/16 academic year

HEADING

Degree classification - Denomination and code:	LM-11 Conservation and restoration of culturale heritage
Degree title:	Dottore Magistrale
Length of course:	2 years
Credits required for admission:	180
Total number of credits required to complete programme:	120
Years of course currently available:	1st , 2nd
Access procedures:	Open, subject to entry requirements
Course code:	F8Y

PERSONS/ROLES

Head of Study Programme

Prof. Luca Trombino

Degree Course Coordinator

Prof Luca trombino

Tutors - Faculty

Tutor per l'orientamento - prof. Nicola Ludwig, prof. ssa Flavia Groppi, prof. Andrea Zerboni

Tutor perla mobilità internazionale e l'Erasmus - prof. ssa Francesca Cappitelli.

Tutor per i piani di studio:

prof.ssa Silvia Bruni - percorso per Esperti di diagnostica e tecnologia applicata ai beni culturali storico-artistici

prof. Andrea Zerboni - percorso per Esperti di diagnostica e tecnologia applicata ai beni culturali archeologici

dott. Leonardo Gariboldi - percorso per Esperti di conservazione applicata ai beni culturali museali

prof. Goffredo Haus - percorso per Esperti di diagnostica e tecnologia applicata ai supporti dell'informazione.

Tutor per stage e tirocini - prof. ssa Elisabetta Onelli

Tutor per laboratori e altra attività - prof.ssa Elisabetta Onelli

Tutor per tesi di Laurea - prof.ssa Elisabetta Onelli

Tutor per trasferimenti - prof. Marco Merlini

Tutor per ammissioni Lauree Magistrali - prof. Luca Trombino

Tutor per riconoscimento crediti - prof. Marco Merlini

Degree Course website

<https://www.unimi.it/it/corsi/corsi-di-laurea/scienze-la-conservazione-e-la-diagnostica-dei-beni-culturali>

Ufficio per la Didattica, al momento si riceve solo via email scrivendo a: sportello.beniculturali@unimi.it

<https://www.unimi.it/it/corsi/corsi-di-laurea/scienze-la-conservazione-e-la-diagnostica-dei-beni-culturali> Email: sportello.beniculturali@unimi.it

Via Mangiagalli 34 - II piano Quando disponibile o su appuntamento Email: luca.trombino@unimi.it

Via Celoria, 18 - 20133 Milano Phone 0250325032 <https://www.unimi.it/it/node/360> <https://www.unimi.it/it/node/359>

<https://www.unimi.it/it/studiare/biblioteche>

CHARACTERISTICS OF DEGREE PROGRAMME

General and specific learning objectives

The master degree in "Cultural Heritage Conservation Science" is aimed at students who want to extend and deepen the skills acquired in previous degree courses to enter in the world of research or profession in the field of conservation science of cultural heritage.

In this light, the master degree aims to transmit an in-depth knowledge of the methods and technologies that the mathematical, physical and natural sciences make available today for the preservation of cultural heritage; moreover, it aims to provide the scientific skills allowing further development in these research fields. It aims to train future Conservation Scientists, i.e. experts in science and technology applied to cultural heritage with a high interdisciplinary educational background. Since there are many types of cultural heritage, it is appropriate to specify that the course will focus on the historical-artistic, archaeological, architectural, on museums and on information storage media, because they are the ones

deeply rooted in the cultural tradition of the proposers and, in view of the future professional opportunities for graduates, the most relevant for the research field and the employment market. Therefore, the master degree will prepare professional profiles of: 1 - experts in diagnostics and application technology to historical and artistic cultural heritage, with particular reference to wall and on wooden paintings and textile supports; 2 - experts in diagnostics and technology applied to archaeological cultural heritage (geoarchaeologists and archaeometres); 3 - conservation experts applied to museum cultural heritage; 4 - experts in diagnostics and technology applied to information storage media.

In addition to theoretical courses, numerous laboratories are provided to support the notions with the necessary applications, in order to make the interface with the research and professional worlds stricter. The training offer proposed is composed of courses for each area envisaged by the ministerial educational system (Conservation Sciences and Technologies, Earth and Nature Sciences, Interdisciplinary Training), corroborated by supplementary courses, as well as by the internships and the final dissertation. Through this offer the students will be oriented and guided to finalize their training to achieve one of the proposed professional profiles.

The master degree aims to transmit the wide range of knowledge necessary to operate at the level of excellence in the field of cultural heritage diagnostics and conservation, taking as a cultural reference the interdisciplinary nature of the professions of the research field.

In particular, the master graduated will acquire in-depth theoretical, methodological and experimental skills in the Conservation Sciences applied to Cultural Heritage, in order to identify new theoretical developments and to operate at decision-making level in all areas of the sciences applied to Cultural Heritage.

Expected learning outcomes

In-depth knowledge and understanding of the disciplines characterizing the class, in particular, those relating to scientific techniques applied to the diagnosis and conservation of historical-artistic, architectural, archaeological, museum and cultural media and information storage media;

- knowledge and understanding of the techniques and good practices for diagnostics and conservation of the categories of cultural heritage above mentioned;

- understanding of the interdisciplinary aspects of problems related to diagnostics and conservation of cultural heritage.

The knowledge and comprehension skills listed above are achieved through participation in lectures, exercises and personal study, provided by the training activities activated within the disciplinary areas of Biology, Chemistry, Physics, Computer Science, and Earth Sciences.

The acquisition of knowledge and comprehension skills will be verified through judgments based on the evaluation of the activities carried out by the individual student during the teaching period (elaborates and short essays, solutions of problems and exercises, oral presentations during lessons and exercises, etc.) and a final exam in written and/or oral form.

APPLYING KNOWLEDGE AND UNDERSTANDING

- Ability to autonomously use the main experimental methods of diagnostics applied to the conservation of cultural heritage and to operate with management and coordination roles, in diagnostic laboratories, in archaeological excavation sites, in restoration sites and laboratories and in museums;

- ability to organize and frame complex problems and information in an appropriate and coherent way.

The achievement of the ability to apply the knowledge listed above will take place through participation in lessons, individual study and through the practical exercises in laboratory and field activities. In this context, courses with laboratory exercises and field experience are particularly important.

To verify the above mentioned skills, written and/or oral exams are provided, as well as practical tests in which the student is called to demonstrate mastery of tools and methodologies. The ability to apply the acquired knowledge is also verified through other practical activities, such as participation in archaeological excavations and restoration sites.

MAKING JUDGEMENTS

- Ability to choose methods and techniques on the basis of both the reference manuals and the most advanced good practices

- to be applied to specific types of cultural heritage;

- ability to evaluate the legal implications of the planning and execution of conservation and diagnostic operations applied to cultural heritage;

- knowledge of modern detection, management and data processing instruments.

The autonomy in making judgments and the ability to plan and conduct interventions are mainly developed during the study groups, seminars, reports preparation.

The acquisition of independent judgment is verified through critical discussion during the examinations, but also by assessing the ability to work in group during the graduation thesis.

Professional profile and employment opportunities

- Experts in diagnostics and technology applied to historical-artistic cultural heritage

Work Context

The master graduated in Cultural Heritage Conservation Science carries out functions of high responsibility in the areas of the conservation of historical-artistic heritage, both in terms of diagnostics (in support of restoration) and of protection and development:

- carrying out research activities in public and private institutes responsible for the conservation of cultural heritage (museums, art galleries, galleries, private collections);

- coordinating activities related to the scientific knowledge of cultural heritage performed by experts from different sectors, in the context of conservation / restoration campaigns;

- carrying out freelance activities the conservation of movable property belonging to public institutions and private collections;
- carrying out dissemination activities in the field of sciences applied to diagnostics and conservation of historical and artistic heritage;
- collaborating in the creation of scientific apparatus for temporary exhibitions and displays;
- examining and harmonizing the analytical results of specific diagnostic campaigns, on behalf of public and private institutions involved in the conservation of the historical and artistic heritage.

Skills Associated to the Role

The master graduated in Cultural Heritage Conservation Science has specific knowledge of the most modern applications of the biological, chemical, physical, geological and IT sciences used in the field of the conservation of historical-artistic heritage, in different contexts related to specific environmental or provenance conditions. He is aware of the ethical and legislative aspects of the restoration of the artworks of public and private institutions.

Career Opportunities

- universities and public research agencies;
- public and private biological, chemical, physical, geological and IT analysis laboratories;
- superintendences, museums, and art galleries;
- private museums;
- scientific journalism, specifically linked to the dissemination of scientific analyzes related to the study and conservation of historical and artistic heritage;
- freelance activities in the field of laboratory analysis on historical and artistic heritage.

2 - Experts in diagnostics and technology applied to archaeological cultural heritage (geoarchaeologists and archaeometres)
Work Context

Campus

Lessons and exercises/laboratories take place in the Città Studi classrooms.

Laboratories

Teaching laboratories take place both in departmental structures, equipped with technical-scientific instruments and collections, and on-field, using customised logistics solutions.

Activities in equipped laboratories take place in the following Departments: Department of Earth Sciences, Department of Chemistry, Department of Food, Environmental and Nutritional Sciences (Faculty of Agricultural and Food Sciences), Department of Physics, Department of Computer Science.

Notes

In order to obtain their degree, students must be proficient in English at a B2 level. This proficiency level may be certified as follows:

- By a language certification, earned within three years prior to the date of submission, at a B2 level or higher. For the list of language certifications recognised by the University, please review: <https://www.unimi.it/it/studiare/competenze-linguistiche/placement-test-e-corsi-di-inglese>). The certification must be uploaded during the enrolment procedure, or subsequently to the portal <http://studente.unimi.it/uploadCertificazioniLingue>;
- By a Placement Test, which is delivered by the SLAM during year I only, from October to January. Students who fail the test will be required to take a SLAM course.

The Placement Test is mandatory for all students who do not hold a valid certification.

Those who do not sit the Placement Test by January, or who fail to pass the end-of-course test within six attempts, must obtain an outside paid certification by graduation.

EXPERIENCE OF STUDY ABROAD AS PART OF THE TRAINING PROGRAM

The University of Milan supports international mobility by providing its students with the opportunity to spend study and internship periods abroad. It is a unique chance to enrich your educational path in a new exciting environment.

The agreements entered into by the University with over 300 universities from the 27 EU member countries and other Extra-EU countries under the European Erasmus+ programme allow regularly enrolled students to carry out part of their studies at one of the partner universities or to undertake internships at companies, training and research centres and other organizations.

Similar international mobility opportunities are provided outside Europe, through agreements with a number of prestigious institutions.

Study and internships abroad

Erasmus is a grant that finances the study abroad experience at a partner university, as part of bilateral agreements with selected universities and research centers in many foreign countries. When abroad, students attend courses, carry out research activities or do an internship.

In order to get these grants, students must contact a professor of this program who will scientifically supervise the exchange. Every topic related to this program is suitable. Two types of grants are available:

Erasmus+, for attending courses and carry out research activities (refer to the call in the Geological Sciences area).

Erasmus+ Traineeship (see Placement on unimi.it website), exclusively for internships.

For Erasmus+, see the call on the Geology area in the unimi.it website. Among other agreements, please have a look at the undergraduate and graduate courses offered by TEI, Technological Educational Institute, Atene (Grecia), who has a special agreement with this program.

The call for Erasmus+ Traineeship is published on the unimi.it website for all programs. In the recent past, Traineeship partners were: Cergy-Pontoise (France), Poitiers (France), Santiago de Compostela (Spain) and Ghent (Belgium). Anyway, new agreements with other universities or research centers can be signed if a professor of this program has some scientific collaboration with them. Apart from courses and exams, any activity carried out at the abroad institution is worth 5 credits (CFU) per month.

The “learning agreement” between professors at the home and abroad institution will define the activities the student will carry out. This document, together with the transcript of the exams and other research activities, will allow for the acknowledgment of such activities by this program.

To attend courses and take exams abroad has many advantages. In addition to being an unconventional experience in a student’s life, it offers a big opportunity to practice in the local language. The students will also experience and compare different teaching systems, gaining more flexibility in their studying activities. Finally, the study abroad experience is in some cases a good opportunity to use facilities otherwise not available (for example, special equipment for experiments), work with large research groups on a cosmopolitan scale.

How to participate in Erasmus mobility programs

How to participate in Erasmus+ mobility programmes

The students of the University of Milan can participate in mobility programmes, through a public selection procedure.

Ad hoc commissions will evaluate:

- Academic career
- the candidate's proposed study programme abroad
- his/her foreign language proficiency
- the reasons behind his/her application

Call for applications and informative meetings

The public selection generally begins around February each year with the publication of a call for applications specifying the destinations, with the respective programme duration (from 2/3 to 12 months), requirements and online application deadline.

Every year, before the deadline for the call, the University organizes informative meetings to illustrate opportunities and rules for participation to students.

Erasmus+ scholarship

The European Union grants the winners of the Erasmus+ programme selection a scholarship to contribute to their mobility costs, which is supplemented by the University funding for disadvantaged students.

Language courses

Students who pass the selections for mobility programmes can benefit from intensive foreign language courses offered each year by the University.

Learn more at <https://www.unimi.it/en/international/study-abroad/studying-abroad-erasmus>

For assistance, please contact:

International Mobility Office

Via Santa Sofia 9 (second floor)

Tel. 02 503 13501-12589-13495-13502

Contacts: InformaStudenti mobility.out@unimi.it

Student Desk booking through InformaStudenti

1st COURSE YEAR Core/compulsory courses/activities common		
Learning activity	Ects	Sector
English proficiency B2 (3 ECTS)	3	ND
Total compulsory credits	3	
2nd COURSE YEAR Core/compulsory courses/activities common		
Learning activity	Ects	Sector
FINAL EXAM	33	NA
TRAINING	12	NA
Total compulsory credits	45	

Further elective courses		
Characterizing Formation Activities - Conservation Sciences and Technologies (18 CFU)		
ANALYTICAL METHODS FOR THE ENVIRONMENTAL DEGRADATION OF CULTURAL HERITAGE	6	CHIM/01
CALORIMETRY AND THERMAL ANALYSIS, LABORATORY	6	CHIM/02
CONSERVATION AND VALORIZATION OF SCIENTIFIC INSTRUMENTS	6	FIS/07
PHYSIC TECHNIQUES APPLIED TO CULTURAL HERITAGE: LABORATORY	6	FIS/07
Characterizing Formation Activities - Earth and Natural Sciences (18 CFU)		
ADVANCED ANALYTICAL METHODS IN MINERALOGY AND PETROGRAPHY FOR CULTURAL HERITAGE, LABORATORY	6	GEO/06, GEO/07
APPLIED GEOLOGY FOR THE PRESERVATION OF ARCHAEOLOGICAL AND ARCHITECTONICAL HERITAGES	6	GEO/05
ARCHAEOBOTANY	6	BIO/02
GEOPHYSICS APPLIED TO CULTURAL HERITAGE	6	GEO/11
PALAEONTOLOGY AND VERTEBRATE PALAEONTOLOGY, MUSEOLOGICAL ASPECTS	6	GEO/01
SEDIMENTOLOGY AND CULTURAL HERITAGE	6	GEO/02
Characterizing Formation Activities - Interdisciplinary Formation (12 CFU)		
COLORIMETRY AND COLOR MANAGEMENT FOR CULTURAL HERITAGE	6	ING-INF/05
COMPUTING TECHNOLOGIES APPLIED TO CULTURAL HERITAGE	6	INF/01
INTEGRATED COURSE OF ADVANCED BIOTECHNOLOGIES APPLIED TO CULTURAL HERITAGE: LABORATORY	6	AGR/16, AGR/11, AGR/12
MOVIE RESTORATION	6	INF/01
SITE MANAGEMENT AND PREVENTIVE ARCHAEOLOGY	6	L-ANT/10
Related and Complementary Formation Activities (12 CFU)		
ANALYSIS AND DIAGNOSTICS OF ARCHITECTURAL CULTURAL HERITAGE	6	AGR/10
FORMATION PROCESSES IN ARCHAEOLOGICAL SITES	6	GEO/04
MICROCLIMATOLOGY APPLIED TO CULTURAL HERITAGE	6	GEO/12
TOPOGRAPHIC TECHNIQUES AND EQUIPMENT FOR ARCHAEOLOGICAL AND ARCHITECTONICAL SURVEY	6	ICAR/06
Other Formation Activities, freely selected by students among courses held by University of Milan (12 CFU)		

COURSE PROGRESSION REQUIREMENTS

The program of each course indicates the preliminary knowledge necessary to adequately deal with the contents of the course itself. It is the responsibility, as well as the interest, of the student to comply with these indications.