



## **Basic Skills Courses 2019/20**

### **PROGRAM**

## FOREWORD

**TRAINING KICK-OFF (field activity), November 29, 2019:**

Full-day field excursion to Villarbasse (TO) including practical disciplinary and interdisciplinary activities on cultural heritage. Faculty members and stakeholders will present natural landscape and cultural heritage of the Piedmont area near Torino (local food offered).

**INTRODUCTION, December 12, 2019:**

Conference day with an introductory lecture on the concept of Cultural Heritage and four lectures on thematic and methodological general topics:

- **Cultural Heritage: definition(s) vs. perception(s)** (V. Messina)
- **Data, Information, Knowledge** (F. Rinaudo)
- **Intervention** (E. Diana)
- **Management** (S. de Martino)
- **Transdisciplinarity** (V. Lombardo)

The introductory lectures program defines thematic methodological areas, also intended as a guide for focused lectures within the 'Focuses' section.

**FOCUSES, From December 16, 2019 to January 31, 2020:**

Thematic lectures, each of 2h to 4h, concerning disciplinary areas and/or case studies that fit into one or more general topics, according to the following color code:

**Knowledge, Intervention, Management, Transdisciplinarity.**

## SYLLABI

### TRAINING KICK-OFF (field activity)

#### Geodiversity, history and cultural heritage in the Alpine piedmont, West of Torino



Marco Giardino, Eugenio Aghemo

*Contents:* Audio-visual presentation of data on the geological and geomorphological framework of the Piedmont Area near Torino. Lecture on the historical setting of the Villarbasse area. Presentation and field verification of cultural Geoheritage: the geosites of Rivoli-Avigliana Morainic Amphitheatre. The Via Geoalpina for promoting knowledge on geodiversity and cultural landscape.

*Educational goals:*

- Acquire basic knowledge of the geodiversity of the Piedmont Area near Torino;
- Acquire basic knowledge of the cultural geoheritage and its relationships with local history;
- Understanding the importance of cultural geoheritage for local development.

#### Restoration of historical buildings in Villarbasse



Piera Capello, Nestor Lozano

*Contents:* Visit to the Mistrot and D'Angennes Palace, and to the San Nazario Church. Appraisal of the restoration techniques.

*Educational goals:*

- Understanding the importance of proper restoration techniques in baroque architecture and paintings.

### **Role of local cultural initiatives in promoting culture and art**



Piera Capello, Roberto Rubiola

*Contents:* Meeting with President of the Amici di San Nazario Cultural Association. Visit to the Rubiola Art Gallery

*Educational goals:*

- Understanding the importance of local cultural initiatives in promoting cultural heritage.

### **Field mapping, digital surveys and technological activities at the Centre for Experimental Archeology in the Rivoli-Avigliana morainic**



Giorgio Gay, Marco Giardino, Luigi Perotti and Fulvio Rinaudo

*Contents:* Definition and description of geological and geomorphological units, interpretation of their (morpho)stratigraphical context. Evaluation on a reconstructed archaeological context. Simulation of ancient technological activities on engraved stones. Application of digital technologies for the acquisition of field data..

*Educational goals:*

- engaging a multidisciplinary activity of field data collection;
- comparing different approaches to the scientific field investigation.

## INTRODUCTION

### Cultural Heritage: Definition(s) vs Perception(s)

Vito Messina

*Contents:* definitions of Cultural Heritage have been many times proposed and calibrated by International (Research, Academic, Museums, ...) Institutions ( and (governmental or non-governmental) Authorities that share the mission of its protection, preservation and promotion. Approaches to, and definition(s) of, the concept of Cultural Heritage are witnessed by different types of primary and secondary sources that generally adopt the basic subdivision into Tangible, Intangible, and Natural Heritage as a starting point to come to the definition of World Heritage as a synthesis. This frame has been acquired in the community of scientists and professionals who transdisciplinary advance knowledge on, intervene in, and manage Cultural Heritage; section aims at questioning what are the perceptions of this concept in other communities, for these perceptions often overlap instances like identity and legacy, which directly affect societies.

*Educational goals:*

- engaging with theoretical and ethical issues related to the concept of Cultural Heritage;
- questioning its perception by different communities within or across societies;
- being introduced to the general topics of the basic skill training course (knowledge, intervention, management) in a transdisciplinary perspective.

### Data, Information, Knowledge

Fulvio Rinaudo

*Contents:* this section focuses on the analysis and discussion on the concept of “knowledge on Cultural Heritage assets” by using measurements of physical properties for assessing its methods, validity and scope (epistemology). The knowledge is the starting point for every process of intervention and management: thus it must be acquired in a critical way, by considering 1) the impossibility to reach the “truth”, 2) the necessity to verify previous belief, and 3) the possibility to change the assumed valid knowledge in a proper way. The transmission of the acquired knowledge is faced by considering the scientific methodology, which has to guarantee the clear description of the experiments (instruments, environmental conditions of the experiment, etc.), and the complete analysis of the achieved results to allow everyone a repetition of the experiments to confirm or contest the assumed results.

*Educational goals:*

- engaging with the scientific experimental investigation methodology
- engaging with contradictory experimental results
- being introduced to a humble approach to scientific research

### Intervention

Eliano Diana

*Contents:* This section focuses on the meaning of intervention in cultural heritage in a broad sense. Intervention is intended as any action which leads to a modification of material aspects or contexts. Intentional or unintentional actions may affect heritage as a whole, with positive or negative effects. Positive interventions such as preservation,

rehabilitation, conservation, restoration and reconstruction are also common practices of ongoing maintenance. Some important ethical and technical guidance of intervention will also be considered.

*Educational goals:*

- acquiring the concept of intervention;
- recognizing material and immaterial implications;
- envisioning ethical consequences.

## **Management**

Stefano de Martino

*Contents:* Heritage management in a diversity of political and social situations. The origins of state control of Heritage and the birth of the World Heritage concept. Agencies, Committees and Conventions for the protection of Cultural Heritage. The Heritage Boom and the growth of visitors to museums and sites. Developments in the presentation of archaeological sites and museum collections. The vulnerability of heritage.

*Educational goals:*

- being introduced to the principles of heritage management;
- understanding the different approaches to heritage management from the 19<sup>th</sup> century until now;
- being aware of the vulnerability of heritage.

## **Transdisciplinarity**

Vincenzo Lombardo

*Contents:* Cultural Heritage requires a 360-degree approach from definition to its management. All the disciplines involved have developed intersecting knowledge and practices; and the current digital treatment of all the phases has been pushing dramatically the transition from a multi-disciplinary to a trans-disciplinary approach. The semantic challenge and the algorithmic approach to several issues are further enforcing, on the one hand, the interferences of perceptions and, on the other, the creation of shared languages.

*Educational goals:*

- critical appraisal of major interchange issues that occur between technological, historic, and management disciplines;
- acquiring awareness of multi- inter- cross- trans-disciplinarity;
- tackling the representation issues through the digital framework.

## FOCUSES

### Cooperation and synergy among researchers investigating past material records: a first-hand experience



Monica Gulmini

*Contents:* It is presently well known that knowledge, management and intervention on tangible cultural heritage are multidisciplinary endeavours. Nevertheless, disciplines rarely share common languages and procedures, therefore cooperation can be challenging. The lecture gives food-for-thought on this topic by stimulating discussion on significant examples taken from the direct experience within the BE-ARCHAEO project (<http://www.bearchaeo.com>).

*Educational goals:*

- Become familiar with the activation of concepts by verbal means;
- Obtain awareness of limits associated with the “sharp” disciplinary preparation of individuals engaged in multi-disciplinary teams;
- Stimulate the revision of ways of dealing to enhance cooperation in multi-disciplinary workgroups;
- Present some basic concepts in chemical analyses.

### Archaeological Theory today



Vito Messina

*Contents:* In the last decades, archaeological sciences did overcome the divide so far created in the discipline between Processual and post-Processual approaches to the study of ‘material’ Past. Yet, the interdependence with Natural, Social, Historical, Environmental and Digital Sciences made Archaeology meaningless out of inter-, multi- and transdisciplinary frames, to the extent that it overarches all those disciplines when engaging with cultural debate about representations of the Past and deep understanding of societal changes. This lesson, in which the title of a famous miscellaneous book edited by I. Hodder is echoed, aims at questioning the diversity of contemporary archaeological theory and its openness to external but increasingly interfaced disciplines.

*Educational goals:*

- acquire basic knowledge on archaeological theory and the way it interferes and interacts, more and more increasingly, with other disciplines;
- understanding the way global and local long-term evolution is understood from the cultural and social points of view.

### Coloured and colouring materials: detection of dyes and pigments through non-invasive approaches



Maurizio Aceto, Monica Gulmini

*Contents:* Colour is among the features that mostly catch the eye. A number of substances have been used in the past (and still are now) to enhance the appearance of everyday objects, and to produce artworks. The recognition of colouring materials is therefore one of the tasks tackled by scientists investigating items from the cultural heritage domain (from archaeological materials to modern artworks). In this lecture, an overview of the colourants’ typology in different materials will be presented. Then, the attention will be

drawn on simple, fast and non-invasive techniques (Fibre Optics diffuse Reflectance Spectroscopy - FORS - and Fiber Optics Molecular Fluorimetry - FOMF) to investigate colourants in various materials and artworks. The analysis of polychromy on materials such as paintings, pottery, glasses and textiles will be discussed, together with practical demonstrations carried out in the classroom.

*Educational goals:*

- acquire the basic knowledge of absorption spectrophotometry;
- acquire the basic concepts of the approach of diagnostic techniques on materials;
- acquire the skill of evaluating the pros and cons of non-invasive techniques.

## **Heritage Stones and sustainability**



Giovanna Antonella Dino

*Contents:* The issues connected to heritage stones (<http://globalheritagestone.com/>) and their close connection to cultural heritage and architecture have been brought to the fore in the last 15 years and their growing relevance for cultural heritage have to be highlighted. Natural stones are the main material used in architectonic heritage and several ornamental and building stone types have been used in heritage buildings construction and have been accorded significant recognition in human culture. Heritage stones recognition kindles public and policy-maker interest in stone-built heritage, encouraging the use of local natural stone and ensuring its availability for the maintenance of built-heritage and the quality of new buildings. The present subject aims at engaging the public in all that pertains to the 'material' knowledge of the past through different types of publications, digital media and platforms, or visits of historical quarries and cultural buildings. Several expertises are related to heritage stones topics (geologist, engineer, archaeologist, architect, biologist, etc.). All these experts study, from different points of view (often cooperating with other experts guaranteeing an interdisciplinary approach to the studies), the global heritage resources. The outputs of these research is useful to improve the awareness (at different level) of citizens, public authorities, researchers, trade associations, etc... about the importance of the heritage stones for the cultural heritage of heritage stones. Different specializations have been developed in this frame: Education, Natural Resource Management, Ethic, Architecture and decay studies, and Geo-Tourism. This lesson aims at highlighting the importance of using original natural stones in the restoration and conservation of historical buildings, and other issues associated with natural stones and geoheritage, such as historical quarries and quarry landscape. Case history about Heritage Stones from Northern Italy will be presented.

*Educational goals:*

- acquire basic knowledge on heritage stones and their close link to cultural heritage and architecture;
- understanding how the knowledge of heritage stones can be useful to promote and enhance the use of local and/or original stones for historical buildings restoration and new buildings construction. Those aspects deal with the idea of "sustainability", inflected to the use of (geo)materials for "sustainable" constructions.

## **Public Archaeology and societal challenges**



Stefano de Martino

*Contents:* Public Archaeology aims at engaging the public in all that pertains to the 'material' knowledge of the Past through different types of publications, digital media and platforms, or visits of sites and excavations. Today, such an engagement goes far beyond this. Public archaeologists also study the outcomes of the various innovative ways by which different communities are involved in archaeological research, especially in terms of public awareness (at various levels). Different specializations have been developed in this frame: Heritage Education, Cultural Resource Management, Museum Studies, Ethic and Cultural Tourism. Public archaeology, which is indeed also referred as Community



Archaeology, is in the end a civically-engaged discipline, whose goals and methods change depending on societal challenges. This lesson aims at providing an understanding about the different ways archaeologists practice public outreach. A case study concerns the recent devastation of heritage in Iraq and the recovery of the Iraq Museum collection.

*Educational goals:*

- acquire basic knowledge on the potentiality of community engagement in Archaeology;
- understanding to which extent Archaeology can affect societies at local and global levels.

### **Semantic knowledge for cultural heritage tagging and documentation: theory and practice**



Vincenzo Lombardo, Rossana Damiano

*Contents:* The digital approach to many fields of knowledge has triggered the necessity to acquire skills on computational modeling on behalf of researchers and practitioners. This lecture introduces the basic knowledge of the logic languages, in the semantic web perspective, and provides the basic notions of practical modeling from the disciplinary knowledge to its logic encoding in a machine-readable language and the creation of shared vocabularies. Finally, we address how the encoded vocabularies provide the backbone to the tagging of cultural heritage items, for the construction of shared databases.

*Educational goals:*

- acquire the basic theoretical notions of logical languages applied to cultural heritage tagging and documentation;
- acquire the modeling skills to address a practical tagging project;
- acquire the logic underlying databases for cultural heritage.

### **X-Ray Powder Diffraction: basic principles and application in material science applied to cultural heritage**



Roberto Giustetto

*Contents:* X-ray diffraction (XRD) represent quite a simple, direct and micro-invasive methodology for the accurate investigation of the material nature and composition. In this lecture, a general survey about the basic principles of this technique will be introduced, with an eye towards explaining some specific archaeometric application involving the characterization of historical pigments and the nature of the decorations on prehistoric pottery, with the related discrimination of all constituent materials (e.g., mineral phases, bones, coral) and related degradation byproducts.

*Educational goals*

- acquire the basic knowledges of X-Ray Diffraction principles.
- understand the potentialities and capabilities of such an approach in the Cultural Heritage field

### **Chemometrics in cultural heritage**



Silvia Grassi, Monica Gulmini

*Contents:* The investigation of objects from the cultural heritage domain with state-of-the-art chemical and physical techniques usually generates huge amounts of data, which can be difficult to manage by means of traditional approaches (such as tables and bivariate graphics) and poor recovery of information from raw data may arise. When large dataset are produced, Multivariate data analysis (a.k.a. Chemometrics) supports researchers with proper tools specifically designed to fully exploit their data-sets. Despite originally chemometric research covered applications in chemistry, it is an application-driven discipline. Indeed, chemometrics can be used in many different fields to make the analysis easier, to enhance the representation of results and obtain a more reliable rationalization of the data. In this lecture some typical situations in archaeometry and conservation science for which the application of chemometrics boosts the quality of the results will be presented in the introduction, Then, an overview of recent applications of chemometrics for the characterization and conservation of cultural heritage will be provided. Especially we will focus on data exploration by Principal Component Analysis (PCA) and classification by discriminant and class-modelling approaches. Simple examples will be developed together by free toolboxes working in Matlab environment (<http://gruppochemiometria.it/index.php/software>).

*Educational goals:*

- being introduced to the usefulness of Chemometrics in the cultural heritage field;
- understanding the different chemometric techniques by their application.

### **Non-invasive X-ray techniques for material characterization in heritage science**



Alessandro Re, Alessandro Lo Giudice

*Contents:* x-rays based non-invasive techniques are crucial to obtain elemental and structural information on tangible cultural heritage. Moreover, in many cases, instruments are portable/transportable on archaeological sites or museums avoiding the artefacts movement. Information obtained is useful for many purposes, as to know the realization techniques and the conservation state of the objects or to obtain a surface/inside 3D model. The goal of the seminar is to describe the most widespread x-rays scientific techniques used in the cultural heritage field. In particular it will focus on X-Ray Fluorescence (XRF), digital radiography and tomography. The analysis of cases study will be discussed, together with practical demonstrations.

*Educational goals:*

- acquire the basic concepts of the approach of non-invasive X-rays diagnostic techniques on materials;
- acquire the basic knowledge of theoretical and laboratory use of X-ray Fluorescence (XRF), digital radiography and tomography.

### **From number to measurements**



Fulvio Rinaudo

*Contents:* each kind of scientific analysis implies a “measurement” of physical properties. The measurement is an experiment which results depend on the instrument used, the operator, the environmental conditions,. In most cases this experiment can be modeled by considering the random error law which found a possible mathematical model inside the stochastic domain. This section introduces to the practical management of a measurement of physical properties by allowing the estimation of the most probable “true” value as a consequence of precision and accuracy.

*Educational goal:*

- engaging a proper interpretation of the measurements
- acquire a critical approach to the analysis of scientific investigation based on experimental results

## Modern trends in metric survey techniques and strategies

Fulvio Rinaudo

*Contents:* the knowledge of tangible Cultural Heritage assets requires a morphological description and/or a localisation of the punctual physical analysis. Those basic information could be recovered by means of Geomatics tools and technologies. The lecture offers an exhaustive panorama of the possible techniques to be used to define the shape, the dimensions and the localisation of specific points of an object with respect to the object itself or to an external reference frame. The techniques will be presented by explaining the basic theoretical principles, the main application fields and the metric quality of the obtainable information.

*Educational goal:*

- acquire the basic knowledge of the Geomatics techniques and strategies
- acquire the basic capability to select for each application the correct methodology to define shape, dimensions, and localisation

## Geodiversity assessment methods with emphasis on multi-criteria analysis

Zbigniew Zwolinski

*Contents:* The main topic of lecture is focused on definition, context, assessment, and interpretation of geodiversity in mountain areas. The considerations on geodiversity will be supported by examples from the Alps, the Carpathians, the Tatra Mountains, and one of the catchment in the Giant Mountains in the Sudetes, for which geodiversity has been determined in the digital approach. By the way, the geodiversity of selected Mediterranean islands in the context of cultural geoheritage will be briefly presented.

*Educational goals:*

- knowledge of evaluation criteria in geodiversity analysis;
- ability to classify different components of environment according to their use in geodiversity assessment at local, regional and global scales;
- acquire the basic knowledge of the geographical information systems;
- engaging a proper interpretation of the geodiversity assessment.

## The methodology of conservation interventions and materials for conservation

Dominique Scalarone

*Contents:* Any action to prevent, conserve and maintain a cultural asset requires a series of operations ranging from document analysis to monitoring, through the diagnostics of materials, the definition of the state of conservation, the cleaning, consolidation and protection. In particular, the characteristics of the main types of materials (i.e. consolidants, adhesives, protective coatings) used in restoration interventions will be described, focusing on the selection criteria, on the methods of application, on the mechanisms of action and on the evaluation of their effectiveness. An unusual conservation area, the conservation of urban/street art, will be the guiding thread in illustrating critically the main steps of a conservation procedure.

*Educational goals:*

- knowledge of evaluation criteria for conservation interventions;

- knowledge of decay processes;
- knowledge of the main classes of materials for conservation;
- ability to classify materials according to their use in conservation.

### Geophysics and cultural heritage: from basics to applications

Elena Zanella

*Contents:* Geophysical methods are an important tool for archaeological prospection, both for detailed analysis of a single archaeological feature or for the assessment of a whole landscape. Geophysics provides a non-invasive and rapid methodology to understand sub-surface features and conditions. It is based on well-known physical properties and may be applied using specific techniques as required by the context and the environment, without risking damage to the resource. The principle of different geophysical methods will be discussed together with their main potentiality and limit in order to identify and preserve Cultural Heritage. Case studies will be presented illustrating a wide range of casistic.

*Educational goals:*

- acquire basic knowledge on geophysical methods for archaeology and for the conservation and diagnosis of cultural heritage;
- critical analysis of the potential of the different methods in relation to the specific context of application and evaluation of expected results;

### Joint efforts towards the understanding of glass production and circulation in pre-Islamic Babylonia

Monica Gulmini, Vito Messina

*Contents:* The lesson will present the results of a collaborative work in which archaeologists and chemists investigated a set of fragmentary glass containers, dated to the Parthian and Sasanian periods, with the aim of understanding their production and circulation. These were recovered during excavations conducted by the Turin Centre for Archaeology in Middle East (CRAST) at Veh Ardashir, about 30 km south of present-day Baghdad. Veh Ardashir, one of the main cities of the Sasanian empire, was founded at the centre of a network of land and water routes connecting the Mediterranean to the Silk Roads and the Gulf. It probably overlapped a more ancient and small settlement, at least in part. This is the reason why the glass containers there discovered reveal features that are characteristic of different periods and areas of production, as if the know how they embody was the result of inputs that circulated in a loop far larger than the region in which the city was founded. Further to an introductory classroom, aimed at presenting the archaeological context and performed chemical analyses, activity will continue at the Museo d'Arte Orientale (MAO), where some of the recovered glass fragments are kept: these will be inspected through the optical microscope in order to highlight some of their specific features.

*Educational goals:*

- Acquire some basic knowledge on the technology of glass production;
- Being introduced to some approaches for the investigation of archaeological glass by means of instrumental analytical methods;;
- Being acquainted with the definition of archaeological questions to be posed to natural scientists;

## **Metallic materials: techniques of investigation and case studies**

Paola Rizzi

*Content:* Metallic materials contains, written in their microstructure, the history of their production and use. The archaeometallurgist, being an expert of the modern metallurgy, can highlight the secrets hidden in the ancient objects. The goal of the seminar is to describe a few production techniques used in antique and to address the scientific techniques that can be used to study the ancient metallic materials, i.e. SEM, XRD, optical microscopy, hardness. Two case studies will help in the understanding of the possible information that can be obtained from the scientific study of metals.

*Educational goals:*

- acquire the basic knowledge of the production techniques of metallic materials used in the past
- acquire the basic knowledge of the scientific techniques used for metallic materials investigation
- acquire the skill of evaluating which are the more useful scientific techniques for metals investigation

## **From recognition to intervention: Envisioning archaeological excavation**

Paolo De Vingo

*Contents:* excavation is seen as the pivotal way of intervention of archaeological sciences by non-archaeologists. Indeed, excavation is part of more complex strategies that do not concern field activities exclusively, being the ending point of a long process that does often develop in a chain and implies a holistic approach to the way 'material' knowledge on the Past is acquired to be processed and shared. Excavation is the invasive technique by which material evidence that did come down to present-day in depositional or post-depositional contexts is purposely destroyed for systematic record-keeping. In this lesson basic techniques, approaches and strategies of archaeological sciences are addressed with the purpose of questioning their effectiveness in different contexts, environments and conditions.

*Educational goals:*

- acquire basic knowledge on strategies of archaeological science;
- understanding the way they contribute to the acquisition, understanding and interpretation of Cultural Heritage (not only of the Past);
- reconsider notions previously acquired critically.

## **Infrared and Raman techniques in the material science applied to cultural heritages**

Eliano Diana

*Contents:* This lecture introduces a basic knowledge of the interaction of electromagnetic radiation with the matter, and will focus on two of the most important non-destructive or micro-invasive analytical techniques employed in material investigations. Sampling techniques, conventional and confocal microscopy, absorption and reflectance measurements, employ of cross sections. Enhancement of the Raman signal: resonance Raman, surface enhanced Raman spectroscopy (SERS). Classroom practice on selected case-study.

*Educational goals*

- acquire the basic knowledge of sampling and molecular investigation of materials.
- acquire the basic concepts of conventional and confocal microscopy

## SCHEDULE

|  |  |   |  |   |  |  |  |
|--|--|---|--|---|--|--|--|
| <b>TRAINING KICK-OFF (field activity)</b><br>November 29, 2019, Villarbasse (TO)   |  |   |  |   |  |  |  |
| hours  | <b>Nature vs Culture: Interactions and Actions</b>   |   |  |   |  |  |  |
| 10   | <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%; text-align: center; vertical-align: top;"> <b>Knowledge</b><br/>           Geodiversity, history and cultural heritage in the Alpine piedmont, West of Torino<br/>           Presentation of data on the geological and geomorphological framework, and historical setting of the Villarbasse area         </td> <td style="width: 33%; text-align: center; vertical-align: top;"> <b>Intervention</b><br/>           Restoration of historical buildings in Villarbasse: the Mistrot and D'Angennes Palace, the San Nazario Church         </td> <td style="width: 33%; text-align: center; vertical-align: top;"> <b>Management</b><br/>           Role of local cultural societies in promoting culture and Art: the Rubiola Art Gallery         </td> </tr> <tr> <td colspan="3" style="text-align: center;"> <b>Transdisciplinarity</b><br/>           Field mapping, digital surveys and technological activities at the Centre for Experimental Archeology in the Rivoli-Avigliana morainic amphitheatre<br/>           Definition and description of geological and geomorphological units, interpretation of their (morpho)stratigraphical context. Evaluation on a reconstructed archeological context. Simulation of ancient technological activities on engraved stones. Application of digital technologies for the acquisition of field data..         </td> </tr> </table> | <b>Knowledge</b><br>Geodiversity, history and cultural heritage in the Alpine piedmont, West of Torino<br>Presentation of data on the geological and geomorphological framework, and historical setting of the Villarbasse area | <b>Intervention</b><br>Restoration of historical buildings in Villarbasse: the Mistrot and D'Angennes Palace, the San Nazario Church | <b>Management</b><br>Role of local cultural societies in promoting culture and Art: the Rubiola Art Gallery | <b>Transdisciplinarity</b><br>Field mapping, digital surveys and technological activities at the Centre for Experimental Archeology in the Rivoli-Avigliana morainic amphitheatre<br>Definition and description of geological and geomorphological units, interpretation of their (morpho)stratigraphical context. Evaluation on a reconstructed archeological context. Simulation of ancient technological activities on engraved stones. Application of digital technologies for the acquisition of field data.. |  |  |
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| <b>Transdisciplinarity</b><br>Field mapping, digital surveys and technological activities at the Centre for Experimental Archeology in the Rivoli-Avigliana morainic amphitheatre<br>Definition and description of geological and geomorphological units, interpretation of their (morpho)stratigraphical context. Evaluation on a reconstructed archeological context. Simulation of ancient technological activities on engraved stones. Application of digital technologies for the acquisition of field data.. |  |   |  |   |  |  |  |

| <b>INTRODUCTION</b>   |   |              |
|---|---|--------------|
| December 12, 2019, Campus Luigi Einaudi (CLE), room F5 (9 - 17, with lunch break) |   |              |
| hours   | CONTENTS AND TOPICS   |              |
| 1   | <b>Cultural Heritage<br/>Definition(s) vs Perception(s)</b> |              |
| 4   | Knowledge   | Intervention |
| 1   | Transdisciplinarity   |              |

| <b>FOCUSES</b>                             |                      |  |                                   |  |  |
|--|----------------------|--|-----------------------------------|--|--|
| from December 16, 2019 to January 31, 2020 |                      |  |                                   |  |  |
| color code                                 | date and time        | Place  | Referent(S)                       | Lesson Title   |  |
| ■ ■ ■                                      | 16 Dec 2019<br>14-16 | Via Giuria 5<br>aula analitica   | Monica Gulmini                    | Cooperation and synergy among researchers investigating past material records: a first-hand experience |  |
| ■ ■ ■                                      | 16 Dec 2019<br>16-18 | Via Giuria 5<br>aula analitica   | Vito Messina                      | Archaeological Theory today  |  |
| ■ ■ ■                                      | 17 Dec 2019<br>14-16 | Via Giuria 5<br>aula analitica   | Maurizio Aceto,<br>Monica Gulmini | Coloured and colouring materials: detection of dyes and pigments through non-invasive approaches       |  |
| ■ ■ ■                                      | 18 Dec 2019<br>9-11  | Scienze della Terra<br>Aula C - Ex Galfer - corso<br>Massimo d'Azeglio. 42 | Giovanna Dino                     | Heritage Stones and sustainability   |  |



|  |  |   |   |   |  |
|--|--|---|---|---|--|
|  |  | 19 Dec 2019<br>14-16                    | Sala Biblioteca Tabacco<br>Palazzo Nuovo  | Stefano de Martino                      | Public Archaeology and societal challenges   |
|  |  | 9 Jan 2020<br>9-13                      | Dipartimento di<br>Informatica<br>Sala Riunioni   | Vincenzo Lombardo,<br>Rossana Damiano   | Semantic knowledge for cultural heritage tagging and<br>documentation: theory and practice                     |
|  |  | 14 Jan 2020<br>9-13                     | Scienze della Terra<br>Via Valperga Caluso 35<br>Room TBC   | Roberto Giustetto                       | X-Ray Powder Diffraction: basic principles and application in<br>material science applied to cultural heritage |
|  |  | 15 Jan 2020<br>11-13<br>14-16           | Morning: Chemistry<br>Department, Via Giuria 5,<br>Aula analitica<br>Afternoon: To-Expo, Aula<br>informatica 3 Thin Client          | Silvia Grassi, Monica<br>Gulmini        | Chemometrics in cultural heritage  |
|  |  | 16 Jan 2020<br>10.30-12-30<br>and 14-16 | CCR - Venaria Reale<br>Aula G   | Alessandro Re, Alessandro<br>Lo Giudice | Non-invasive X-ray techniques for material characterization in<br>heritage science                             |
|  |  | 17 Jan 2020<br>9-11                     | Castello del Valentino - Sala<br>della Caccia   | Fulvio Rinaudo                          | From numbers to measurements   |
|  |  | 17 Jan 2020<br>11-13                    | Castello del Valentino - Sala<br>della Caccia   | Fulvio Rinaudo                          | Modern trends in metric survey techniques and strategies   |
|  |  | 20 Jan 2020<br>9-11                     | Scienze della Terra<br>Aula Ruffini - Via Valperga<br>Caluso, 35  | Zbigniew Zwolinski                      | Geodiversity assessment methods with emphasis on multi-criteria<br>analysis                                    |
|  |  | 21 Jan 2020,<br>14-18                   | Via Giuria 7, auletta II -<br>Dipartimento di Chimica   | Dominique Scalarone                     | The methodology of conservation interventions and materials for<br>conservation                                |
|  |  | 22 Jan 2020<br>14-16                    | Scienze della Terra, aula 3   | Elena Zanella                           | Geophysics and Cultural Heritage: from basics to applications (I)  |
|  |  | 23 Jan 2020<br>11-13<br>15-17           | Morning: Dipartimento di<br>Chimica, Via Giuria 5<br>Aula analitica<br>Afternoon: Museo d'Arte<br>Orientale, Via San<br>Domenico 11 | Monica Gulmini,<br>Vito Messina         | Joint efforts towards the understanding of glass production and<br>circulation in pre-Islamic Babylonia        |
|  |  | 28 Jan 2020                             | Scienze della Terra, aula 4   | Elena Zanella                           | Geophysics and Cultural Heritage: from basics to applications (II)   |

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|  |  |  | 11-13                |  |                |  |
|  |  |  | 28 Jan 2020<br>14-18 | Via Giuria 9<br>sala di rappresentanza | Paola Rizzi    | Metallic materials: techniques of investigation and case studies                       |
|  |  |  | 29 Jan 2020<br>14-16 | Palazzo Nuovo, room 25                 | Paolo De Vingo | From recognition to intervention<br>Envisioning archaeological excavation              |
|  |  |  | 31 Jan 2020<br>14-18 | Chemistry Department,<br>Room TBC      | Eliano Diana   | Infrared and Raman techniques in the material science applied to<br>cultural heritages |