



UNIVERSITÀ
DEGLI STUDI
DI TORINO

TECH4CULTURE PHD PROGRAMME

BASIC TRAINING COURSES a.y. 2022 / 2023

XXXVIII cycle

1. ARTIFICIAL INTELLIGENCE AND READING PARCTICES

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
1 December 2022 h. 14:00-16:00 16 December 2022 h. 10:00 – 12:00	Maurizio Vivarelli; Sara Dinotola	Workshop or seminar	Innovation	This seminar describes the premisses, context and characteristics of the Reading (&) Machine project developed by the Turin Polytechnic SmartData@Polito and VR@Polito centers, the University of Turin Department of Historical Studies, and the Turin Civic Libraries. The project aims to create an innovative environment capable of capturing and enriching the reading experience through recommendation algorithms and a special interface, and to become part of a new conception, both digital and physical, of the library reading space. Reading (&) Machine is based on the processing of library data and other types of data from the aNobii social reading platform and generalist social networks. The project therefore develops a new configuration of a reading machine that can help enhance the role, functions and identity of public libraries.
Sala seminari, Dipartimento di Studi storici (3° piano)				

2. DIGITAL CULTURAL HERITAGE. MODELS OF REPRESENTATION, INTERFACES, USER EXPERIENCE

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
9-10 January 2023 h. 15:00- 17:00	Maurizio Vivarelli; Anna Maria Marras	Workshop or seminar	Innovation	The seminar has as its object the presentation of the general lines of the debate on the creation of models of representation of cultural heritage objects in a digital environment. In particular, issues related to the enrichment of metadata will be taken into consideration, with a view to establishing access interfaces with relevant narrative characteristics. Significant case studies will be presented and discussed during the seminar.
Sala seminari, Dipartimento di Studi storici (3° piano)				

3. X-RAY AND NUCLEAR TECHNIQUES FOR MATERIAL CHARACTERISATION IN HERITAGE SCIENCE

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
25 January 2023 h. 10:00-13:00 (theory) h. 14:00-17:00 (laboratory)	Alessandro Lo Giudice; Alessandro Re	Laboratory or other practical activities outside of the classroom	Methodology	<p>Nuclear physics applications in medicine and energy are well known and widely reported. Less well known are the many important nuclear and related techniques used for the study, characterization, assessment and preservation of cultural heritage. There has been an enormous progress in this field in recent years. The basic concept is to use nuclear radiations of various kinds (X ray, γ-ray, electron, neutron and ion beams) to investigate the elemental, structural and/or isotopic composition of an object. Information obtained are useful for many purposes in particular to know the realization techniques and the conservation state of the objects, to identify the provenance of the raw materials, to authenticate works of art and to date materials.</p> <p>The one-day activity (6 hours) will be divided in a part of theory (in the morning) and a part of laboratory (in the afternoon). The laboratory will be focused mainly on the use of X-ray techniques for the material characterization.</p>
Department of Physics – Aula Wataghin				

4. DIGITAL RESOURCES FOR CUNEIFORM STUDIES

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
27 January 2023 h. 14:00-	Maurizio Viano	Formal training	Methodology	This training will focus on the most important digital resources in the field of cuneiform studies, i.e. Assyriology and Hittitology. The student will learn how to use these resources and their purpose.
Remotely: https://unito.webex.com/me et/maurizio.viano				

5. THE JOURNEY OF PROSOPOGRAPHIC DATA FROM ANNOTATION FROM VISUALIZATION: A CASE STUDY

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
1 February 2023 h. 14:00-	Stefano de Martino; Rossana Damiano	Workshop or seminar	Methodology	<p>For more than one decade, archaeologists and historians have relied on data science to gain insight on ancient societies from data. In particular, Social Network Analysis (SNA) allows exploring and visualizing in network formats the connections over sources, personages and locations, helping experts to confirm their working assumptions and possibly suggesting new ones.</p> <p>In this course, we will describe the basic methods and the pipeline for collecting and annotating prosopographic data in order to create SNA visualizations. The pipeline will be illustrated in a case study carried out at the University of Turin by a multi-disciplinary team of historians, archaeologists,</p>

Sala seminari, Dipartimento di Studi storici (3° piano)				computer scientists and data scientists. Participants will be able to familiarize with the formats and tools employed in the pipeline through practical examples.
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6. BIOLOGICAL MATERIALS: CHARACTERISATION, BIODETERIORATION, BIOCONTROL AND BIORESTORATION. A MULTIDISCIPLINARY APPROACH.

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
8 February 2023 h. 09:00-13 AULA B DBIOS VIA ACCADEMIA ALBERTINA 13	Enrica Pessione; Beatrice Demarchi; Mariangela Girlanda; Samuele Voyron	Formal training	Methodology	Artifacts and items of natural origin such as wooden materials, bones, animal and vegetal textiles but also paintings are often poorly characterized despite the fact that the knowledge of their composition is crucial to assess dating, possible causes of deterioration and overall information on the object. Similarly, on items of both natural and synthetic origin, deterioration events occur that deeply alter the structure and threaten the life of the object. Apart from physical events such as weathering, most deteriorating agents are living organisms, including microbes (both aerobic and anaerobic bacteria) and fungi. Characterising with traditional and innovative approaches (i.e: molecular-based tests) the species involved is thus a priority as well as shedding light on the biochemical mechanisms (enzymatic attack, acid-generating metabolic pathways) underlying the undesired bio-deterioration process. A further aspect is the possibility to employ living bacteria or their enzymes to biocontrol degradation, to bio-clean and bio-restore items. All these aspects will be the object of a transdisciplinary seminar

Dept of life sciences and systems biology (DBIOS) (room to be defined)				which aims to link together expertises from different scientific areas such as biochemistry, microbiology, mycology, mass spectrometry and molecular biology. The final purpose is to offer to the students an integrated strategy to evaluate, characterize and restore cultural heritage items.
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7. TRANS-DISCIPLINARITY AND APPLIED DIGITAL SCIENCES

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
<p><u>17 February 2023</u> h. 09:00-13:00 Department of Informatics - Sala Riunioni (Vincenzo Lombardo)</p> <p><u>22 February 2023</u> h.14:30-18:30 Department of Informatics - Sala Riunioni (Vincenzo Lombardo)</p> <p><u>3 March 2023</u> h.14:00-18:00 Palazzo Nuovo - Aula 21 (Monica Gulmini)</p>	Vincenzo Lombardo; Monica Gulmini	Formal training	Methodology	<p>The course introduces the notion of trans-disciplinarity and the basic concepts of the digital sciences. After an overview of the formal notation and digital representation of cultural objects, we introduce the semantic vocabularies for the annotation of the metadata and apply the formal concepts into a workshop carried on Content Management System Omeka-S. The workshop addresses two case studies, one on artwork collections and one on archaeology/archaeometry investigations. The plan is for 5 half-day meetings, with formal training and workshops. Materials will be distributed. Maybe, an additional seminar held by Rossana Damiano will be scheduled.</p>

8. A MULTIDISCIPLINARY AND INTEGRATED LEARNING EXPERIENCE ABOUT AND IN FRONT OF A BRONZE SCULPTURE: CONDITION ASSESSMENT, ANALYTICAL PROTOCOL AND PRESERVATION STRATEGIES.

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
<p><u>23 February 2023</u> h. 09:00-11:00 and 11:00-13:00 Aula Viola-Torino Esposizioni</p> <p><u>24 February 2023</u> h. 11:00-13:00 Outdoor lecture - meeting point Department of Chemistry, Via Pietro Giuria 7</p> <p><u>27 February 2023</u> h.09:00-12:00 Auletta II, Department of Chemistry</p> <p>14:00-17:00 Metallic materials laboratory, Department of Chemistry, Via Pietro Giuria 9</p> <p><u>28 February</u> h. 09:00-12:00 Auletta II, Department of Chemistry</p> <p>14:00-17:00 Outdoor lecture - meeting point Department of Chemistry, Via Pietro Giuria 7</p>	<p>Dominique Scalarone; Angelo Agostino; Alberto Castelleri; Beatrice Demarchi; Sergio Favero Longo; Paola Rizzi</p>	<p>Formal Training</p>	<p>Methodology</p>	<p>The course includes both classroom lessons, laboratory sessions and outdoor activities. The contents are transversal to the chemical, biological and heritage conservation sciences. Through the analysis of a case study, the topic of the design of an analytical protocol for the identification and characterization of constituent and degradation materials will be addressed, deepening aspects such as condition reporting, study of chemical, physical and biological decay processes, sampling and protective treatments. Each student will prepare a poster (70 x 100 cm) for a non-specialized audience on the course content.</p> <p>Deadline: 10 March 2023.</p>

1 March

h. 14:00-17:00

**Auletta II, Department of
Chemistry**

2 March

h. 09:00-12:00

**Aula Informatica 3, Torino
Esposizioni**

9. IMAGING ARCHAEOLOGY. THE HUNG-E AZHDAR EXPERIENCE

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
27 February 2023 h.	Vito Messina	Formal training	Innovation	The mountains of South-West Iran are characterised by the occurrence of ancient rock carvings. These artworks are often located in remote places, as if they were sculpted to remain invisible. They have been particularly studied in a traditional art historical approach. The Iranian-Italian Joint Expedition in Khuzestan experimented for the first time in Iran laser scanner acquisition of some carvings and proposed studied rather based on new digital data.
Sala seminari, Dipartimento di Studi storici (3° piano)				

10. JOINT EFFORTS TOWARDS THE UNDERSTANDING OF GLASS PRODUCTION AND CIRCULATION IN PRE ISLAMIC BABYLONIA

Date / Time/	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
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Location				
<p>1 March 2023</p> <p>h. 10:00-14:00</p> <p>Sala seminari, Dipartimento di Studi storici (3° piano)</p>	<p>Monica Gulmini ; Vito Messina</p>	<p>Workshop or seminar</p>	<p>Transdisciplinary</p>	<p>The overall activity articulates in different parts, having different teaching goals. The introductory part will present the case study: a collaborative work in which archaeologists and chemists investigated a set of fragmentary glass containers dated to the Parthian and Sasanian periods. The finds were recovered during the archaeological 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 was one of the main cities of the Sasanian empire and 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, at least partially, a more ancient and smaller settlement. This is the reason why the glass containers there discovered revealed 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. The second part will deal with the approaches, both from archaeometry and archaeology, employed to understand the production and circulation of the set of glass fragments included in the research. Archaeological and chemical evidences will be discussed and conclusion will be drawn. Then, the students will be involved in observing under an optical microscope some of the features of the archaeological finds, in order to demonstrate some of the conclusions obtained by the collaborative work. The activity aims at 1) giving some basic knowledge on the technology of glass production; 2) introducing some approaches for the investigation of archaeological glass by means of instrumental analytical methods; 3) acquainting the students with the definition of archaeological questions to be posed to natural scientists.</p>

11. COLOURED AND COLOURING MATERIALS: DETECTION OF DYES AND PIGMENTS THROUGH NON INVASIVE APPROACHES

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
7 March 2023 h. 14:00-18:00	Monica Gulmini; Maurizio Aceto	Workshop or seminar	Methodology	<p>Colour is among the features that mostly catch the eye and a variety of colourants and pigments has been used in the past (and still is now) to enhance the appearance of everyday objects or to create pieces of art. The recognition of colouring materials is therefore one of the tasks tackled by scientists when investigating items from the cultural heritage domain, from archaeological finds to modern artworks. The activity will give an overview of the colourants' typology in different materials. 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), which can be employed 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. In addition, the evolution of the above mentioned techniques into imaging devices will be discussed, and hyperspectral imaging will be performed to catch the added values of these approach.</p> <p>The activity will allow the students to:</p> <p>1) acquire the basic knowledge of absorption spectrophotometry; 2) 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.</p>
Dipartimento di Chimica, Aula Disegno Via Pietro Giuria, 7, Torino				

12. SCIENTIFIC INVESTIGATION OF POTTERY AND CERAMICS

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
<p>9 March 2023 h. 10:00-12:00</p> <p>10 March 2023 h.08:00-10:00</p>	<p>Monica Gulmini; Evdokia Tema; Marco Giardino</p>	<p>Laboratory or other practical activities outside of the classroom</p>	<p>Transdisciplinarity</p>	<p>Scientific investigations on archaeological finds and historical ceramics can give information on the raw materials and technologies that were employed for their production, supporting archaeologists and art historians in their interpretation of archaeological finds and historical objects. The PhD fellows will experience the preparation of ceramics from the clay quarry to the furnace, and will know how the scientists can reconstruct, through chemical, physical, mineralogic and petrographic investigation, the different steps of production.</p> <p>2 hours formal training will introduce scientific investigation of pottery and ceramics. 8 hours field trip will allow comparing clay materials, visiting quarry and furnace</p>
<p>University of Torino and Clay Quarry at Boca, Sesia Val Grande UNESCO Global Geopark</p>				

13. FROM CHINA TO CHINOISERIE, WORKS OF ART FROM COLLECTORS TO MUSEUM COLLECTIONS: A TRANSDISCIPLINARY APPROACH TO THE KNOWLEDGE, DATING AND AUTHENTICATION.

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
<p>20-23 March 2023 h. 10:00-</p> <p>The workshop will last 20 hours, 18 of seminars and 4 of museum activities. The training will last 4 days, from 20 to 23 of March 2023, and will involve 10 experts.</p> <p>Chemistry Department, Auletta I Via Pietro Giuria 7, Torino</p>	<p>Eliano Diana; Flavio Ruffinatto; Dominique Scalarone; Paola Manchinu</p>	<p>Workshop or seminar</p>	<p>Transdisciplinarity</p>	<p>Most important museums originate from private collections, built through the taste, knowledge and expertise both of collectors and of art dealers, that only from mid XIX century employed scientific investigations to check the quality and sometimes the authenticity of the works of art.</p> <p>The attribution of an artefact to a historical period is a complex task, that requires knowledge of history, material culture, technology of production. The approach of art historian sometimes follows differing paths by respected connoisseurs, who are often makers of important collections.</p> <p>In a series of seminar we want to face the differing approaches towards the authentication, acquisition and building of an art collection, by treating the specific case of Middle and Late Imperial China artefacts. These works of art have been collectable object for centuries, both in China than in western countries, and innumerable replicas have been realized for both markets, that make sometimes very difficult to give the correct attribution. Besides, the passion for Chinese and Japanese art originated an imitation style, that reached great realizations in Italy, in particular in important Piedmontese buildings, where original Chinese and imitation objects are often mixed.</p> <p>Technological tools and scientific investigations are of great value to support the attribution and the dating of these object, in addition to the contribution to the exploration of making technique. In the seminars, art historian, scientists, dealers and collectors will share their experience on this topic, showing how a trans disciplinary approach make more fruitful the study of an art work in its complexity, and a special focus will be done</p>

				<p>on peculiar materials of Chinese art, like ceramics, porcelain, wood and lacquer.</p> <p>The workshop will last 20 hours (18h of seminars / 4h of museum activities), divided as follows:</p> <p>prof. Eliano Diana: introduction to materials and making techniques in imperial China (2 h)</p> <p>Dr. Marco Guglielminotti Trivel: Replicas, forgeries and reinterpretations of archaic objects in Middle and Late Imperial China (2 h)</p> <p>Visit to Museum of Oriental Art, Turin (MAO) (2 h)</p> <p>(expert to be defined): from private collections to museums (2 h)</p> <p>prof. Dominique Scalarone: Gas chromatography techniques for lacquer investigation (1 h)</p> <p>prof. Alessandro Lo Giudice: radiocarbon dating techniques (1 h)</p> <p>Dr. Paola Manchinu and Dr. Paola Croveri: the imitation of Chinese Art, a Piedmontese case: the "alla China" room of Graneri Palace (4 h, 2 h of lecture and 2 h of visit to Palazzo Graneri, Turin)</p> <p>Dr. Flavio Ruffinatto: wood technology and identification of wood species (2 h)</p> <p>Dr. Aldo Ajassa: the market of Chinese antiques, a methodological approach (2 h)</p> <p>(expert to be defined): collecting Chinese art: connoisseurship and market (2 h)</p>
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14. HUMANS-NATURE INTERACTIONS: FROM LANDFORMS TO LANDSCAPES, FROM ROCKS TO STONES

Date / Time/ Location	Professor(s)	Kind of training	Macro-topic	Content and General Topic(s)
23 March 2023 h. 10:00- 24 March 2023 h.08:00-	Marco Giardino; Vito Messina; Guido Mariani	Laboratory or other practical activities outside of the classroom	Transdisciplinarity	4 hours formal training will introduce basic knowledge on geomorphological and geological constraints to natural dynamics and human actions on landscapes as reconstructed by archaeological case studies. 8 hours practical activities will allow field recognition of landforms and geomorphological processes as well as laboratory testing of archaeological materials and techniques. Geomorphologists and Archeologists will jointly lead training activities including both formal training by illustration of case studies from scientific literature and practical field and laboratory activities
University of Torino (classroom); Rivoli Morainic Amphitheatre (Field trip); Experimental Archaeology (Laboratory), Villarbasse (TO)				