Méthodes d'investigations physiques et chimiques appliquées au patrimoine mobilier

Lecturers
Pascal KOCKAERT (Coordinator) and Marie POSTEC

Course mnemonic
HAAR-B4080

ECTS credits
5 credits

Language(s) of instruction
French

Course period
Second term

Campus
Solbosch

Course content

The following concepts will be adressed in the theoretical part.

Interest of scientific investigation for identification, dating and acquisition of objects from the movables cultural heritage.

Examination of the paint-layer will not be adressed, as another course is devoted to this topic.

Matter and its properties : elementary constituants, isotopes, chemical, structural and molecular description.

Different physical probes : electromagnetic waves (photon, IR, visible an UV light, X- and gamma-rays), beta particles (electrons, positrons), alpha particles, neutrons, ions.

The typical scales related to these probes will be presented as well as the geometrical configurations (reflection, transmission).

Differences between destructive and invasive methods will be highlited.

The list of methods that will be adressed includes dating methods (radiocarbon and thermoluminescence), optical methods, radiography, emmissiography, IR spectrometry, Raman spectrometry, Fourier IR and Raman spectrometry, mass spectroscopy, X-ray diffraction , PIXE and PIGE, neutron activation, electron and neutron diffraction.

Objectives (and/or specific learning outcomes)

Understanding of the principles on which methods of analysis are based as well as their field of application. Capability of determining the different methods that could be used to study a given object. Ability to interact with the persons performing the laboratory measurements.

Teaching method and learning activities

Teaching in front of the classroom, with experimental demonstrations.

Practical examples of application of these methods in exercises sessions.

Contribution to the teaching profile

The course objectives described here below are explicit learning outcomes of the framework.

References, bibliography and recommended reading

Mary E. Malainey, « A Consumer's Guide to Archaeological Science » (Springer 2011), available through the Library of the University at this address

https://link.springer.com.ezproxy.ulb.ac.be/book/10.1007/978-1-4419-5704-7

Other information

Place(s) of teaching

Solbosch

Contact(s)

Pascal(.)Kockaert [@] ulb(.)be

Evaluation method(s)

Oral examination and written examination

written examination

Open question with developed answer

Oral examination

Examination with preparation

Evaluation method(s) (additional information)

Oral exam on the theoretical and practical parts.

During the examination, the Students will present, in 12 minutes, the contents of a journal article in which the conclusions are drawn with the help of at least two methods that were addressed in the frame of this course.

Determination of the mark (including the weighting of partial marks)

Two thirds of the final mark will come from the examination on the theoretical part. The last third will com from the practical part.

Main language(s) of evaluation

French

Other language(s) of evaluation, if applicable

English

Programmes

Programmes proposing this course at the faculty of Philosophy and Social Sciences

MA-HHAAR | Master in History of Art and Archaeology : General | finalité Museums and preservation of the furniture heritage/ unit 1 and MS-ARCS | Specialized Master in Archaeological Science | unit U