



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Geochronology and Archeometry

2122-1-F7401Q052

Aims

Introducing the basic concepts of geochronology and isotope geochemistry and their applications to geological and archeological research.

Contents

The course will deal with the main dating methods relevant for geological and archeological research.

Isotopic geochronology: radioactive decay. The age equation. Rb-Sr, Sm-Nd, U-Pb, K-Ar and ^{39}Ar - ^{40}Ar methods. Statistical and systematic errors. Principles of mass spectrometry: TIMS, SIMS, PIMMS. Isotope geochemistry of Sr, Nd, Pb. Applications of isotope geochemistry to studies on provenance of sediments and archeological objects. Applications of geochemistry to the mitigation of volcanic risk.

Quaternary geochronology: radiocarbon, uranium series disequilibrium, fission tracks, thermoluminescence, dendrochronology. Other non-isotopic direct and indirect dating methods. Dating hominid evolution.

Stable isotope fractionation, isotope thermometry and paleoclimatological proxies: deuterium, carbon, oxygen, heavy elements.

Extinct and cosmogenic radionuclides.

The course will be given in English; it can be given in Italian on unanimous demand.

Detailed program

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Prerequisites

Chemistry, physics, geochemistry, geophysics (suggested)

Teaching form

Frontal lecture, practicals

Textbook and teaching resource

Lecture notes

M. Walker - Quaternary dating methods - Wiley

Semester

march-june 2022

Assessment method

Oral examination at the end of the course

Office hours

wednesdays 11-13
