COURSE DETAIL

MINERAL DEPOSITS IN THE FIELD
Country Italy
Host Institution University of Bologna
Program(s) University of Bologna
UCEAP Course Level Upper Division
UCEAP Subject Area(s) Geography Earth & Space Sciences
UCEAP Course Number 171
UCEAP Course Suffix
UCEAP Official Title MINERAL DEPOSITS IN THE FIELD
UCEAP Transcript Title MNERL DPOSITS FIELD
UCEAP Quarter Units 6.00
UCEAP Semester Units 4.00

Course Description

This course is part of the Laurea Magistrale degree program and is intended for advanced level students. Enrollment is by permission of the instructor. The course focuses on two main topics: summary of fundamentals (deformation, stress and strain, porosity and permeability, brittle and ductile regimes, kinematic and dynamic approach to deformation), and faults and fault-related structures (fault core vs. damage zone; permeability changes along and across fault zones; basic elements of discrete fracture modelling.)

This course provides an overview of the role deformation plays in both the genesis and spatial distribution of ore deposits. This is done by combining traditional class lectures and lab style exercises with seminar-style classes based on reading and student presentations and a few days directly at the outcrop. This combined approach allows students to develop theoretical and practical skills related to asking and assessing scientific questions as well as summarizing and presenting the results of scientific studies dealing with the role exerted by rock deformation and fluid/rock interaction in deformed contexts. The course reviews the concepts, theoretical knowledge and techniques of Structural Geology that are relevant to understanding ore genesis and exploration of ore deposits. It also provides hands-on field work to help strengthen the theoretical knowledge and provide the students with a solid understanding of the involved mechanisms and processes. Students thereby learn the simple principles of “Structural Control” and how to elaborate the best practices for structural data collection and analysis in mineral exploration and mining.

In Spring 2025, there is a 5-day field trip to the Island of Elba and southern Tuscany, which exposes students to outstanding examples of hydrothermal deposits. Fieldwork is used to unravel and constrain the genetic relationships between brittle deformation, fluid ingress, and flow and ore genesis.

Language(s) of Instruction
English

Host Institution Course Number

91585

Host Institution Course Title
MINERAL DEPOSITS IN THE FIELD

Host Institution Campus
BOLOGNA

Host Institution Faculty

Host Institution Degree
LM in GEOLOGY FOR SUSTAINABLE DEVELOPMENT

Host Institution Department
BIOLOGICAL, GEOLOGICAL, AND ENVIRONMENTAL SCIENCES

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