


UE Géochimie des contaminants : I) interactions métaux/minéraux/matière organique dans les réservoirs terrestres

 ECTS
6 credits

 Component
UFR PhITEM
(physique,
ingénierie, terre,
environnement,
mécanique)

 Semester
Automne

- > **Teaching language(s):** French, English
- > **Open to exchange students:** Yes
- > **Code d'export Apogée:** PAX7GRAD

Presentation

Description

This course deals with the fundamental processes that control the behavior of metallic pollutants (e.g. Zn, Pb, As, Ag, Cr, U, Fe, Mn...) and nutrients (Nitrate, phosphate...) in soils, groundwater, mine waters, lakes, and wastewaters. In the first part, the fundamental processes conditioning the mobility/reactivity of these pollutants, and their solubility and toxicity are discussed, i.e. bacterial respiration and the redox chain, the parameters conditioning their retention (specific surface, density/nature/structure/strength of the reactive sites, pH) and their modes of interaction with solids (complexation/ionic exchange/hydrophobicity) are treated, and exemplified.

The second part of the module is dedicated to the illustration of the taught subject, i.e. dedicated to the visit of two respectively sulphide and carbanate-based mining sites and the associated societal, environmental and technical management problems and outcomes. This visit is followed by three days of practical work in the laboratory with the study in small groups of the metal content of the sampled soils, the composition and the BOD of wastewater and the complexing reactivity of reactive soil organic matter. A reading and oral presentation of related scientific publications is included.

Language: Course in English, overheads in French, the 'mines' sites visit and sampling is in French. A 50-page course summary written in English and French is distributed at the beginning of the course.

Course parts

TD	Tutorials (TD)	6h
UE Géochimie des contaminants : I - CM/TD	Lectures (CM) & Teaching Unit (UE)	12h
TP	Practical work (TP)	18h
TERRAIN	Terrain	12h

Useful info

Campus

➤ [Grenoble - University campus](#)