

- Faculté des sciences
- [www.unine.ch/sciences](http://www.unine.ch/sciences)

## Hydrogeophysics and borehole geophysics (3GH2211)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en hydrogéologie et géothermie</b>	<b>Cours: 28 ph</b>	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

### Période d'enseignement:

- Semestre Printemps

### Equipe enseignante

Klaus Holliger (Unil)  
Benoît Valley

### Contenu

This course covers the main surface geophysics and borehole geophysics techniques relevant for hydrogeological studies.

The section on surface geophysics covers:

- Principles of soil et rock physics
- Geoelectric methods
- Induced polarization
- Self-potential method
- Electromagnetics
- Ground penetrating radar (GPR)
- Nuclear magnetic resonance

The section on borehole geophysics covers:

- Downhole logging principles
- Overview of logging techniques
- Detailed study of most relevant techniques for hydrogeology and geothermics
- Field acquisition of borehole logging data
- Field data processing and reporting

### Forme de l'évaluation

CA graded.

The mark will be the combination of (weighted average):

- 40% exercises on surface geophysics
- 20% written test on surface geophysics
- 40% report on borehole borehole geophysics

### Modalités de rattrapage

In case of failure, an oral examination will be arranged in consultation with the course responsible professors.

### Documentation

The relevant documentation will be provided by the instructors during the courses.

### Pré-requis

none

### Forme de l'enseignement

Course et field practicals

### Objectifs d'apprentissage

Au terme de la formation l'étudiant-e doit être capable de :

- Faculté des sciences
- [www.unine.ch/sciences](http://www.unine.ch/sciences)

### **Hydrogeophysics and borehole geophysics (3GH2211)**

- Analyse simple geophysical datasets
- Enumerate the various exploration geophysical technics from surface and in borehole
- Interpret geophysical data

#### **Compétences transférables**

- Communicate data in the form of a report