- Faculté des sciences
- www.unine.ch/sciences

Geological modelling (3GH2221)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
Master en hydrogéologie et géothermie	**Cours: 28 pg**	**Voir ci-dessous**	3

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

Période d'enseignement:

- Semestre Automne

Equipe enseignante

Clément Roques and assistants

Contenu

This course offers a comprehensive introduction to 3D geological modeling using Intrepid/Geomodeller software. Students will delve into the fundamentals of geological modeling, with a particular focus on the explicit and implicit interpolation methods, including the potential-based implicit approach. The course covers the modeling of stratigraphy piles and faults, as well as tackling the notions of uncertainties in geological modeling.

Students will learn to build accurate geological models by integrating surface, geophysical, and borehole data. The course emphasizes a hands-on, learning-by-doing methodology, with 80% of the course dedicated to practical exercises using Geomodeller and a team-based project. By the end of the course, students will be equipped with the essential tools and techniques to create detailed geological models that are applicable to various geological, environmental engineering, and research projects. Additionally, students will gain experience in generating meshes and transferring these models into groundwater application software.

Forme de l'évaluation

Continuous assessment and final presentation of the project carried out during the course.

Modalités de rattrapage

In the event of failure, an oral examination will be arranged with the course supervisors following the official notification of the initial grade.

Documentation

Presentations and descriptions of practical work provided during the course

Pré-requis

None

Forme de l'enseignement

Computer courses and practical exercises

Objectifs d'apprentissage

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

- Identify and explain key sources of uncertainty in geological models.
- Communicate complex geological modeling processes by presenting their findings and discussing their project outcomes during group presentations and written reports.
- Define the principles of explicit and implicit interpolation methods.
- Evaluate the accuracy and reliability of geological models.
- Apply the potential-based implicit interpolation method to develop 3D geological models.
- Transfer model results to groundwater flow softwares.

Compétences transférables

- Develop advanced technical skills in using specialized software for 3D geological modeling.
- Integrate modeling results into a engineering project.

- Faculté des sciences
- www.unine.ch/sciences

Geological modelling (3GH2221)

- Demonstrate teamwork abilities and communication skills.