# Teaching Units of IDIL-AWARE/Water

During the Master 1, students will choose 2 Core Teaching Units at 3 ECTS and 2 Core Teaching Units at 2 ECTS, 1 Non-Core Teaching Unit at 2 ECTS and 2 In-Labs.

In M2, students will choose 4 Teaching Units at 3 ECTS and 1 TE at 2 ECTS.

## UE « core » de la mention Sciences de l'Eau :

| Nom UE | Crédits | Responsables | durée | Nature | Remarques |
|---|---|---|---|---|---|
| Field training in hydrology, hydrochemistry and microbiology | 3 | COURANT Frédérique/ROUSSEAU Marine | 36 | Terrain | |
| Chemicals and health risk | 3 | COURANT Fred/ FENET Hélène | 27 | CM+TD | |
| Water and public health | 3 | FENET Hélène | 27 | CM+TD | |
| Chemicals and ecological risk | 3 | GOMEZ Elena | 27 | CM+TD | |
| Water and crop production | 3 | PREVOT Laurent/JOURDE Hervé | 24 | CM+TD | |
| Numerical methods for modelling: calibration, sensitivity analysis, assimilation | 2 | BAILLY Jean-Stéphane | 24 | CM+TD | |
| Hydrological modelling and global change | **3** | RUELLAND Denis | 27 | CM+TD | |
| Climate change and its impact on hydrology | **2** | TRAMBLAY Yves | 20 | CM+TD | |
| Groundwater modelling and karst hydrological modelling | 3 | JOURDE Hervé | 27 | CM+TD | |
| Economic evaluation of water policies | 2 | FAROLFI Stefano, LOUBIER Sébastien | 20 | CM+TD | Version anglophone prévue 2023 |
| Water management for agricultural transitions | **2** | BARRETEAU Olivier/BELAUD Gilles/KUPER Marcel | 20 | Conf+projet+terrain | |
| Irrigation and development | **3** | Marcel Kuper | 27 | CM+TD | Version anglophone prévue 2023 |
| Water governance | **2** | MOLLE François | 20 | CM+TD | Version anglophone prévue 2023 |
| Biogeochemistry and transfer of pollutants | 3 | MOLENAT Jérôme, JOURDE Hervé | 27 | CM+TD | |

## UE « core » de la mention Sciences de la Terre, des Planètes et de l'Environnement :

| Nom UE | Crédits | Responsables | durée | Nature | Remarques |
|---|---|---|---|---|---|
| Positioning and remote sensing | 3 | CHAMPOLLION Cédric | 36 | CM+TD+TP | |
| Fundamentals of physics and mechanics for coastal and groundwater sciences | 3 | BOUCHETTE Frédéric | 24 | CM+TD | |
| Fractured reservoirs | 2 | BALLAS Grégory | 25 | CM+TD | |
| Hydro-Geophysics | 3 | GAUTIER Stéphanie | 25 | CM+TD+TP+Terrain | |
| Environment through the Quaternary: Mapping and Analysis | 3 | FERRY Matthieu | 24 | CM+TD+Terrain | |
| Geodynamics and plate tectonics | 3 | GUEYDAN Frédéric | 18 | CM+TD | |
| Geothermal energy and storage | 3 | GIBERT Benoit | 24 | TD | |
| Imaging and Geophysics | 3 | GAUTIER Stéphanie | 15 | CM+TD | |
| Numerical modelling for coastal/harbour and ground water dynamics | 3 | BOUCHETTE Frédéric | 32 | CM+TP | |
| Field case study: geophysics applied to karst structures imaging | 2 | CHAMPOLLION Cédric | 24 | CM | |
| Coastal and coastal-groundwater coupled engineering | 3 | BOUCHETTE Frédéric | 24 | CM+TD | |

## UE « non core »

| Nom UE | Crédits | Responsables | durée | Nature | Remarques |
|---|---|---|---|---|---|
| Mediterranean Terrestrial Ecosystems | 2 | Christophe PETIT & VINCENT GIRARD | | | |
| Mediterranean Aquatic Ecosystems | 2 | David MOUILLOT | | TD-Terrain | |
| Connaissance de l'entreprise et valorisation des brevets: PEPITE | 2 | StephanMatecki/Chrystelle Salameh | | | |
| Calling bullshit | 2 | Benoite de Saporta | | | |
| Sustainable management: food, health and environmental challenges | 2 | JM Courrent - G. Naro | | | |
| Genome editing : policy, legal and institutional issues | 2 | Selim Louafi | | | |
| The social science approach to politics and policy / L'appréhension scientifique du politique | 2 | Laura Michel et al. | | | |
| Challenges in chemistry for health and environement | 2 | Jean-Marie Devoisselle | | | |
| Scientific openness to earth and water issues under global change | 2 | Luquot Linda/Hervé Jourde/Delphine Roubinet/Gilles Belaud | | Conf + atelier + projet | |

## In-lab

The In-Lab TE are offered by the UMR associated with the unit. They are not all available each year.

| UMR | Titre | Responsable | Remarque |
|---|---|---|---|
| GM | Hydromorph lab : combining model and physical experimentation to challenge scientific questions and R&D in littoral hydro-morphodynamics | Fred Bouchette | |
| GM | Groundwater flow characterization from borehole hydrogeophysical logging and hydraulic tests | Gérard Lods | |
| GM | Geophysical methods (field experiment, inversion) | Stéphanie Gauthier | |
| GM | Electrical resistivity modeling and inversion in heterogeneous systems | Cédric Champollion | |
| GM | Flow and transport modeling from laboratory to field scale in heterogeneous systems | Delphine Roubinet | |
| HSM | Influence of Anthropogenic activities on River Water Geochemistry | R. Freydier, S. Delpoux, M. Marie and A.Domeau | |
| HSM | Multi scale monitoring for hydrogeological and hydrochemical characterization of karst | H. Jourde, P. Marchand, A. Domeau, S. Delpoux | |
| HSM | Heat and water transfer in the soil-vegetation-atmosphere system | J.Demarty, J. Etchantchu | |
| HSM | Introduction to isotope hydrology | Nicolas Patris | |
| Geau | flood impact observatory | F. Grelot, P. Balzergue | |
| G-eau | Multi-agent modeling | B. Bonté, O. Barreteau | |
| Geau | Wastewater reuse for agriculture: methods for fundamental processes characterization | N. Ait Mouheb | Ouverture 2023 |
| Geau | Satellite observation for large river characterization | P.-O. Malaterre | |
| LISAH | ECO-FILT: Toposoil effect on soil hydrodynamics | J. Molenat, F. Vinatier | |

| | | | |
|---|---|---|---|
| LISAH | CLIMATE-FILL : Gap filling and scaling of meteorogical data | J-S. Bailly | |
| LISAH | LAND-NUM : Integrated spatial modelling of processes at land surface | J-C. Fabre | |
| LISAH | DEM4GeoSc : Advanced Earth surface Geomorphometry from high resolution DEMs | J-S. Bailly (+ D. Feurer) | Ouverture 2023 |
| LISAH | AnthropoSoils : Observing and understanding topsoil charcateristics dynamics under antropogenic drivers for water, carbon et geochemicals cycles | J. Molenat | Ouverture 2023 |
| TETIS | Remote sensing methods applied to soil moisture mapping | N. Baghdadi, F Cernesson | |