

# Master Sciences de la Terre et des planètes, environnement Geosciences (UFAZ) (délocalisé en Azerbaïdjan)

## Présentation

Le changement climatique, la gestion des risques naturels, le développement des énergies décarbonées pour la transition énergétique, la recherche et la gestion de la ressource en eau, la lutte contre les pollutions, la caractérisation du sous-sol préalable à toute installation d'infrastructure... ouvrent de nombreuses perspectives d'emploi aux diplômés en master des sciences de la Terre et de l'environnement pour les prochaines décennies.

Le master mention STPE de Strasbourg propose trois parcours centrés sur les problématiques environnementales ouvert à l'alternance (ISIE), l'utilisation des géosciences pour la transition énergétique (GeOT), et un parcours qui vise des métiers en lien avec une compréhension globale du système Terre, les risques naturels et les ressources minérales (GDT). Le parcours recherche pour les ingénieurs est ouvert aux élèves ingénieurs. Le parcours Geosciences (UFAZ) est délocalisé en Azerbaïdjan.

## Objectifs

Ce parcours est proposé exclusivement dans le cadre de l'UFAZ ([Université franco-azerbaïdjanaise](#)) et est entièrement délocalisé à Bakou.

This two-year program, proposed exclusively within the framework of the French-Azerbaijani University (UFAZ), specializes in Geosciences, with an emphasis on the modeling of physical and chemical processes within the Earth. Optional courses in the second year enable to specialize either in the field natural georesources (oil, gas, mining) or in advanced numerical modeling including the latest AI technologies applied to the earth sciences. It is piloted by Ecole et Observatoire des Sciences de la Terre of Strasbourg University (France), in collaboration with the University of Rennes-1.

The program combines training in advanced aspects of Geology, Geophysics, and Geochemistry requiring a strong background in Mathematics, Physics, and Computer Programming. This training is provided by seasoned Professors and Assistant Professors from Strasbourg and Rennes-1 Universities and supplemented by specialist courses by professionals and experts.

## Métiers visés

Pour connaître en détail l'insertion professionnelle de nos diplômés, consultez [cette page](#).

## Candidater

### Azerbaijani applicants:

See application process and entrance exam details here : <https://admission.ufaz.az/>

### International applicants :

We can accept at most 8 international students per year into the UFAZ Master's program (which has 3 specialties, one of which is Geoscience), and the tuition fee for international students is 5000 \$. The program is taken exclusively at the Baku UFAZ campus (two completely renovated buildings within walking distance of the city center). International students will be offered accommodation here <http://www.univerium.az/> unless they wish to make their own plans for accommodation. The deadlines for international applications have not yet been finalised. The application process will be on the basis of a written application complete with CV, cover letter, grades from bachelor program etc. There may also be an interview. Please take a look at the equivalent process for the UFAZ bachelor program here : <https://www.ufaz.az/en/admissions/international-students/>. You may use the contact address on that page to let the UFAZ administration know you would be interested in applying and are waiting for the procedure for international applicants to

20/05/2024

|                          |                                                                                                                                                                                                                   |
|--------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Composante               | <ul style="list-style-type: none"> <li><a href="#">École et observatoire des sciences de la Terre (EOST)</a></li> </ul>                                                                                           |
| Langues d'enseignement   | <ul style="list-style-type: none"> <li>Anglais</li> </ul>                                                                                                                                                         |
| Niveau d'entrée          | BAC +3                                                                                                                                                                                                            |
| Durée                    | 2 ans                                                                                                                                                                                                             |
| ECTS                     | 120                                                                                                                                                                                                               |
| Formation à distance     | Non, uniquement en présentiel                                                                                                                                                                                     |
| Régime d'études          | <ul style="list-style-type: none"> <li>FI (Formation initiale)</li> </ul>                                                                                                                                         |
| Niveau RNCP              | Niveau 7                                                                                                                                                                                                          |
| RNCP                     | <ul style="list-style-type: none"> <li><a href="#">RNCP31500 : Master Sciences de la Terre et des planètes, environnement</a></li> </ul>                                                                          |
| Lieu                     | Bakou - Azerbaïdjan                                                                                                                                                                                               |
| Campus                   | <ul style="list-style-type: none"> <li>Campus Bakou</li> </ul>                                                                                                                                                    |
| Formation internationale | Formation ayant des partenariats formalisés à l'international                                                                                                                                                     |
| Lieu(x) à l'étranger     | Bakou - Azerbaïdjan                                                                                                                                                                                               |
| Secteurs d'activité      | <ul style="list-style-type: none"> <li><a href="#">Recherche-développement en sciences physiques et naturelles</a></li> <li><a href="#">Autres activités spécialisées, scientifiques et techniques</a></li> </ul> |
| Code ROME                | <ul style="list-style-type: none"> <li><a href="#">Études géologiques</a></li> </ul>                                                                                                                              |
| Stage                    | Obligatoire                                                                                                                                                                                                       |
| Stage à l'étranger       | Possible                                                                                                                                                                                                          |
| Alternance               | Non                                                                                                                                                                                                               |

## Contacts

### Responsable(s) de parcours

- [Damien Lemarchand](#)
- [Alessia Maggi](#)

### Autres contacts

[UFAZ Education Departement](#)

be published to send in your application.

## Prérequis obligatoires

We are looking for students with a strong work-ethic, who are able to learn complex information quickly and use their knowledge to solve previously unseen problems. The ideal applicant will have bachelor level training in :

- Physics (continuum mechanics, fluid mechanics, wave propagation in elastic media, electromagnetic phenomena, potential fields);
- Geology (stratigraphy, plate tectonics, mineralogy, petrology, sedimentology);
- Chemistry (architecture and transformation of matter, chemical equilibria, the thermodynamics of chemical reactions).

Previous experience in laboratory experiments, geological and geophysical field-work, and computer programming in Python will be an advantage.

## Stage

### Stage en France

Durée du stage : 16 semaines

Période du stage : janvier à avril

# Programme des enseignements

## Geosciences (UFAZ) (délocalisé en Azerbaïdjan)

### Master 1 - Sciences de la Terre et des planètes, environnement - Geosciences (UFAZ)

| Geosciences (UFAZ) - S1              |       |       |     |     |
|--------------------------------------|-------|-------|-----|-----|
|                                      | CM    | TD    | TP  | CI  |
| Geology and georesources 1 12 ECTS   | 77h   | 19h   | -   | -   |
| Geology of the world                 | 24h   | -     | -   | -   |
| Regional geological framework        | 24h   | -     | -   | -   |
| Reservoir modelling 1                | 14h   | 10h   | -   | -   |
| Mineral resources 1                  | 15h   | 9h    | -   | -   |
| Transversal tools 6 ECTS             | 20,5h | 16,5h | 29h | -   |
| Geographical information systems     | 4h    | -     | 20h | -   |
| Applied programming in Python        | 12h   | 9h    | 9h  | -   |
| Writing in the sciences              | 4,5h  | 7,5h  | -   | -   |
| Data analysis and modeling 1 12 ECTS | 34h   | 38h   | -   | 24h |
| Signal processing                    | 10h   | 14h   | -   | -   |
| Inverse methods                      | 10h   | 14h   | -   | -   |
| Potential field methods              | 14h   | 10h   | -   | -   |
| Seismic methods                      | -     | -     | -   | 24h |

| Geosciences (UFAZ) - S2                 |       |       |     |     |
|-----------------------------------------|-------|-------|-----|-----|
|                                         | CM    | TD    | TP  | CI  |
| Geology and georesources 2 9 ECTS       | 30h   | 26h   | -   | -   |
| Seismic stratigraphy, well log analysis | 14h   | 10h   | -   | -   |
| Reservoir modelling 2                   | 14h   | 10h   | -   | -   |
| Research Project                        | 2h    | 6h    | -   | -   |
| Hydrosystems 9 ECTS                     | 47,5h | 24,5h | -   | -   |
| Hydrological modeling 1                 | 14h   | 10h   | -   | -   |
| Environmental geosciences               | 19,5h | 4,5h  | -   | -   |
| Geochemical modeling 1                  | 14h   | 10h   | -   | -   |
| Data analysis and modeling 2 12 ECTS    | -     | 6h    | 18h | 72h |
| Methods of numerical modeling           | -     | -     | -   | 48h |
| Geophysical fieldwork                   | -     | 6h    | 18h | -   |
| Geophysical modelling 1                 | -     | -     | -   | 24h |

### Master 2 - Sciences de la Terre et des planètes, environnement - Geosciences (UFAZ)

| M2S3 - Geosciences (UFAZ)                     |     |     |     |     |
|-----------------------------------------------|-----|-----|-----|-----|
|                                               | CM  | TD  | TP  | CI  |
| Fluid and mineral resources 12 ECTS           | 31h | 17h | -   | 48h |
| Hydrological modeling 2                       | -   | -   | -   | 24h |
| Geochemical modeling 2                        | -   | -   | -   | 24h |
| Reservoir modelling 3                         | 16h | 8h  | -   | -   |
| Mineral resources 2                           | 15h | 9h  | -   | -   |
| Geological structures characterization 9 ECTS | -   | -   | 24h | 48h |
| Geological case studies                       | -   | -   | -   | 24h |
| Geological fieldwork                          | -   | -   | 24h | -   |
| Large scale seismic imaging                   | -   | -   | -   | 24h |
| Data analysis and modeling 3 9 ECTS           | 12h | 12h | -   | 48h |
| Satellite data and applications               | 12h | 12h | -   | -   |
| Geoscience software                           | -   | -   | -   | 24h |
| Machine learning in the geosciences           | -   | -   | -   | 24h |

| M2S4 - Geosciences (UFAZ)       |    |    |    |    |
|---------------------------------|----|----|----|----|
|                                 | CM | TD | TP | CI |
| Internship 30 ECTS              | -  | -  | -  | -  |
| Research or industry internship | -  | -  | -  | -  |