


# GEO-ENERGIES, CLIMATIC RISKS AND TERRITORIES

PLUS D'INFORMATIONS :



 Beauvais

 English

## CONTENT & GOALS

This programme focuses on the sedimentary sciences and more particularly on:

- The stakes of geo-energy and climate risks.
- The environmental challenges and associated risks
- The search for diversified and sustainable sources of energy
- The development of territories from emerged lands to maritime areas

By combining sedimentary, structural and marine geology, reservoir analysis and geo-modeling, students will be able to identify energy resources, fossil (hydrogen, uranium, hydrocarbons) and renewable (geothermal, marine energies), and the mixes possible within a territory undergoing energy transition.

## KEY SKILLS DEVELOPED

- Implementation of geological solutions for carbon offsetting
- Assessment of the risks and propose solutions for adapting to natural hazards accentuated by human activities (erosion / shrinkage of the coast, impacts of floods and storms)
- Optimisation of the developments from the coasts to submerged areas
- Protection of the environment and the enhancement of the geological heritage

## DATES OF THE PROGRAMME

Fall semester :end of august - end of january

Spring semester : End of January - Beginning of June



**PROGRAMME OVERVIEW\***  
**FALL SEMESTER (4<sup>TH</sup> YEAR PROGRAMME – MASTER LEVEL)**

MAJOR: SUBSURFACE DATA	ECTS
<b>UE 1 - Project - Subsurface DATA</b> -Research Initiation Project 2 RMD and GRT	5
<b>UE 2 - Common Core courses</b> (including: Management, risk prevention and professional integration / Economic intelligence and project management / Innovation, life cycle analysis and digital culture)	5
<b>UE 3 - Sampling and subsurface data analyses</b> (including: Drilling data and sampling / Geochemistry)	7
<b>UE 4 - Near surface and exploration geophysics</b> (including: Geophysics and signal processing / Well logging and petrophysics)	7
<b>UE Minor - French as second language</b>	3
<b>UE Minor - Advanced spatial tools</b>	3

**PROGRAMME OVERVIEW\***  
**SPRING SEMESTER (4<sup>TH</sup> YEAR PROGRAMME – MASTER LEVEL)**

MAJOR: SEDIMENTARY AND MARINE GEOSCIENCES	ECTS
<b>UE 1 - Project - Introduction to research 3</b>	4
<b>UE 2 - Common Core</b> (including: Field Management and Safety at Work / Management, risk prevention and professional integration / Projects coordination and creativity / Field Management and Safety at Work / Transition, Political Science and Digital)	4
<b>UE 3 - Geological and Geophysical interpretation and synthesis</b> (including: Initiation to the 3D static Modeling / Morpho-sedimentary analysis and geohazards Seismic interpretation)	5
<b>UE 4 - Sequence Stratigraphy</b> (including: Principles of sequence stratigraphy/ Sequence stratigraphy field trip)	5
<b>UE Minor-</b> Quantification and production of Geo, Bio Energies (Label Géo-bio énergies)	3
<b>UE Minor - Innovation, Carbon neutrality and Territories</b> (Label Géo-bio énergies)	3
<b>UE 8 - Elementary or intermediate French</b>	6

**PROGRAMME OVERVIEW\***  
**FALL SEMESTER (5<sup>TH</sup> YEAR PROGRAM – MASTER LEVEL)**

<b>GEOMODELISATION, GEO-ENERGIES AND OCEANOGRAPHY</b>	<b>ECTS</b>
<b>UE 1 - Project - Collective project (Integrated project)</b>	<b>6</b>
<b>UE 2 - Common Core courses</b>	<b>4</b>
<b>UE 3 - Geomodelling</b> (Sedimentological, Basin and Reservoir Modelling, 3D Static Modelling)	<b>4</b>
<b>UE4 - Advanced Exploration Geophysics</b> (Exploration Geophysics, Marine Geophysics bootcamp)	<b>4</b>
<b>UE 5 - Minor - Data Sciences</b> (Python, Data Science, Data Mining, Model implementation...)	<b>3</b>
<b>UE 6 - Minor - Integrated Approaches for Geo-Bio-Energies</b> (Energy Natural storage, Integrated project)	<b>3</b>
<b>UE 8 - Working and communicating in a French-speaking environment</b> (beginner or Intermediate level)	<b>6</b>