Visiting Professor Program
Academic Year 2024/2025

TEACHING COMMITMENT: 12 hours

COURSE TITLE
An Introduction to the Global Carbon Cycle: from Geological Time Scales to the Anthropocene

TEACHING PERIOD
2nd term

SCIENTIFIC AREA
Sedimentary Geology, Geochemistry

LANGUAGE USED TO TEACH
English

COURSE SUMMARY
This course will provide an introduction to the global carbon cycle of the Earth, from geological time scales - where the carbon cycle is determined by exchange fluxes between the surface of the Earth and its geological interior - to the Anthropocene, where relevant carbon cycle processes take place in surface reservoirs, and anthropogenic carbon emissions affect climate and ocean health.

LEARNING OBJECTIVES
- Learn the basics of the biogeochemical carbon cycle: reservoirs, processes, time scales;
- Fundamentals of carbon cycle narrative through geological time;
- The dissolved inorganic carbon system in the ocean: pCO2, DIC alkalinity and pH;
- Basic introduction to box-modelling of the carbon cycle: mass balance, stable carbon isotopes;
- Coupling of the global carbon cycle to the oxygen and sulfur cycles.
VISITING PROFESSOR PROFILE
Il/La visiting professor deve avere competenze nell'applicazione e nella modelizzazione della geochimica isotopica alle ricostruzioni paleoclimatiche e paleoambientali nel passato geologico, con particolare riferimento agli isotopi stabili del carbonio e dello zolfo.

CONTACT REFERENT
Francesco Dela Pierre
francesco.dela pierre@unito.it