



Università
di Catania



UNIVERSITAT DE
BARCELONA

Short Course

“Looking at the Carbon Cycle through rocks”

Dr. Andrea Schito – University of Barcelona

The course offers an insight on carbon behaviour in the geological cycle, from its biogenic origins in sedimentary environments to its stability fields within metamorphic and deep crustal settings. In the first part will be discussed the mechanisms through which organic tissues are preserved, degraded, or transformed during early diagenesis, and how the accumulation of carbonaceous material in marine sediments can be used to reconstruct perturbations of the carbon cycle associated with ecological crises. It will later address carbon alteration under increasing pressure–temperature regimes discussing the transition from disordered organic matter to graphitic structures, alongside the mobility and devolatilization at active and passive margins. A dedicated methodological module provides a detailed overview of analytical techniques essential for investigating carbonaceous phases in both sedimentary and metamorphic rocks introducing the participants to biomarker detection through Gas Chromatography–Mass Spectrometry, petrographic approaches for characterising organic residues, and isotopic and mineralogical methods used to constrain the origin, thermal maturity and structural evolution of graphite. The programme concludes with the analysis of a real case study, requiring students to combine stratigraphic, geochemical, petrographic and mineralogical evidence to reconstruct carbon pathways and evaluate the processes governing its transformation and redistribution in the Earth system.

This is a three-days course open to PhD and Master students in Earth Sciences and will be held at the Department of Scienze Biologiche, Geologiche e Ambientali of the University of Catania from the 23rd to the 26th of March 2026. Sessions will take place in the Microscopy Room of the Department on Monday and Tuesday from 15:00 to 18:00, and on Thursday from 15:00 to 17:00.

To enroll, please send an email to andrea.schito@ub.edu and rosanna.maniscalco@unict.it.

**Attendance certificate will be delivered at the end of the course*