UNIVERSITÀ DI TORINO

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Visiting Professor Program
Academic Year 2024/2025

TEACHING COMMITMENT: 12 hours

COURSE TITLE
Marrying Data and Numerical Models in Earth Sciences: Case Studies from Paleoclimate Research

TEACHING PERIOD
2nd term

SCIENTIFIC AREA
Micropaleontology, Paleoceanography, Paleoclimate

LANGUAGE USED TO TEACH
English

COURSE SUMMARY
In order to address critical research questions in the broad area of Earth Science research, it is increasingly emerging the need of applying a combined data-modelling approach. While data provide empirical evidences for a given phenomenon, the integration with numerical models helps to identify driving mechanisms, establish causal relationships or to independently verify the validity of data. This course will specifically explore the use of a combined data-modelling approach in the field of Paleoclimate research. While focused on examples from this field, the aim of the course is more broadly to provide students with a starter pack to understand the benefits of a combined data-modelling approach in Earth Science research. A substantial part of the course (4hrs) will be dedicated to case studies taken from my own research experience, so to provide the students with real examples of how the process of integrating data with model simulations works start-to-finish, from design and implementation to successful accomplishment.

LEARNING OBJECTIVES

(1) Discern when a combined data-modelling approach is best suited to address a given research question; (2) How to identify the best data-model combination to address specific research questions; (3) How to effectively integrate the two approaches to obtain the most from both.

VISITING PROFESSOR PROFILE

The visiting professor will be skilled in foraminiferal micropaleontology and isotopic geochemestry applied to modelling for paleoceanographic and paleoclimatic reconstruction and prediction of future scenario, with particular regard to the carbon cycle.

CONTACT REFERENT

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