

ORDINAMENTO MASTER

Art. 1 – Informazioni generali

1	Denominazione	CO2 Geological Storage
2	Denominazione in Inglese	CO2 Geological Storage
3	Livello	Secondo
4	Dipartimento	Scienze della Terra
5	Facoltà	Scienze matematiche, fisiche e naturali
6	Codice Master (solo in caso di rinnovo)	30219
7	Area tematica	area scientifico-tecnologica
8	Tipologia	internazionale
9	Eventuali strutture istituzionali partner	Università di Zagabria (Croatia)
10	Sede delle attività didattiche	Roma e Zagabria
11	Durata	Annuale
12	CFU	60

Articolo 2 – Informazioni didattiche

13	Obiettivi formativi	<p>The goal of the course is to provide the participants with the scientific and technical knowledge that needs to be addressed for the successful storage of CO₂ into geological formations. The programme will cover all aspects of the geological storage of CO₂ so that the students can both understand the work of all specialists who will be involved in CCS projects (such as reservoir engineers/geologists, sedimentologists, stratigraphers, geophysicists, structural geologists, geochemical modellers, regulators, etc.) and further develop their own field of specialization.</p> <p>The course is aimed at individuals interested in</p>
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		<p>developing a solid professionalism in the field of geological storage of CO₂. In fact, Carbon Capture and Storage (CCS) is a rapidly advancing field with many interdisciplinary scientific and technical challenges that are being addressed globally. This course is provided within the EU project ENOS (Enabling Onshore CO₂ Storage in Europe) to prepare a new generation of young people who want to work on these topics. This training course will present an overview of the state-of-the-art of CCS operations and research; it will focus on the technical and scientific considerations for CO₂ injection and safety monitoring, the exploration of critical processes in laboratory studies, and numerical modelling</p>
14	Risultati di apprendimento attesi	<p>After completing the master, the student will be able to:</p> <ul style="list-style-type: none">- Describe the influence of anthropogenic emissions of CO₂ on climate change (and compare it with influence of other GHG on climate)- Define and explain all relevant segments of CCS process chain- Enumerate all possible options for geological storage of CO₂ and explain mechanisms that enable retention of CO₂ in different types of underground storages- Explain geochemical interactions in reservoir (between injected CO₂, pore fluids and reservoir rocks) as well as in cap-rock (between injected CO₂, pore fluids and cap-rocks)- Explain basic terms from reservoir engineering- Explain the process of enhanced oil recovery using CO₂ and how the CO₂EOR process can be optimized to maximize the retention of CO₂ in the reservoir- Perform initial screening of a sedimentary basin for possible CO₂ underground storage sites- Estimate (Calculate) static capacity for CO₂ geological storage of deep saline aquifer and depleted HC reservoir- Describe the workflow of dynamic CO₂ storage capacity estimations- Enumerate and explain all possible risks of CO₂ geological storage and define appropriate mitigation measures- Enumerate monitoring techniques and explain when and how each of the monitoring techniques should be applied



15	Settori Scientifico Disciplinari	Geo/03, Geo/06, Geo/08, Geo/10, Geo/11, Ind-Ing 24, Ind-Ing-25, Ind-Ing 30, Ing-Ind 35
16	Numero minimo	8
17	Numero massimo	10
18	Uditori ammissibili	Si
19	Corsi Singoli	Tutti
20	Obbligo di Frequenza	75%
21	Lingua di erogazione	English

Articolo 3 – Fonti di finanziamento del Master

22	Importo quota di iscrizione	€ 2000
23	Articolazione del pagamento	due rate di pari importo

Articolo 4 – Informazioni organizzative previste

24	Risorse logistiche	1 classroom - Computer lab
25	Risorse di tutor d'aula	n.d.
26	Risorse di personale tecnico-amministrativo	1
27	Risorse di docenza di ruolo Sapienza	4 + 3 (provenienti dall'Univerisità partner)
28	Risorse di docenza a contratto	Da definire