UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Sedimentology

2122-2-E3401Q043

Aims

Understanding the different transport processes and the sedimentation. Meaning of the sediments and sedimentary rocks and the related sedimentary environments. Meaning of the sedimentary structures. Sedimentological interpretation of a sedimentary succession (Facies analysis). The evolution of the Southalpine sedimentary succession.

Contents

Facies and Walther's Law. Sediments and sedimentary rocks. Composition, classification, and diagenesis of sedimentary rocks. Sedimentary structures. Facies and depositional environments. Southalpine sedimentary succession.

Detailed program

Facies and Walther's Law. Sedimentation: processes and products. Sedimentary rock types (carbonates and terrigenous). Constituents, textures, cements and porosities of sandstone and carbonate rocks. Diagenesis. Sediment transport: bed load and suspended load. Traction. Bedding and bedforms. Sediment gravity flows. Interpretation of sedimentary structures. Facies analysis. Alluvial fan. Fluvial and deltaic environments. Coastal and shelf environments. Continental slope and rise environments. Turbiditic corrent and turbidite. Carbonate/evaporite coastal succession. Anoxic basins. Southalpine sedimentary succession.

Prerequisites

Principles of Geology. Plate tectonics. Stratigraphical principles and methods (e.g. geological time scale, Stenone' law). Sedimentary, magmatic and metamorphic rocks.
Geomorphology. Surface processes and the way they interact to create the different landforms. Weathering, slope processes, soil erosion, fluvial and glacial processes. Human impact on natural environmental.

Teaching form

- **in the classroom (lessons will be in streaming).**

- Laboratory exercises with Focus on case histories with group work in the classroom.
- Field work with two-six-day fieldtrips to sedimentary successions.

The course also includes the presence of a Disciplinary Tutor (24 hours) who will follow the students during the laboratory exercises hours in a constant and regular way, to arrive at the exam more prepared.

Textbook and teaching resource

Booklist.

- **Required text: Sedimentologia vol.3 Ambienti sedimentari e facies di Ricci Lucchi Franco. Data di Pubblicazione: 1980; Pagine: 548**
- Slides and scientific articles.

Semester

Semester 1.

Assessment method

Final Exam (written exam) - The 3 questions will concern the whole program carried out in the classroom and the field trips:

1. Exercise about the sediment grain size
2. Description of sedimentary log
3 Question about the south alpine sedimentary succession

The exam will only be passed with all 3 sufficient questions.
After the written test (for students who wish it) the exam can continue as an oral test (but only for students who have sufficient written results).
If the written (or oral) exam fails, student will have to retake the exam in its entirety.

Office hours

Wednesday from 14.30 to 17.30 (to schedule an appointment: giovanni.vezzoli@unimib.it)