UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Structural Geology

2324-2-E3401Q055

Aims

Giving the basis for the recognition, classification and description of the geological structures.

Contents

The final score of Structural Geology comprehends the course of “Structural geology” (A. Tibaldi), the course of “Geologic cartography” and the field training.

Structural geology: Stress and strain. The principal types of deformations: reverse, transcurrent and normal faults, folds, foliations and scistosity, fractures and tectonic joints. Elements of structural geology applied to neotectonics.Geologic cartography: how to read a geological map and prepare geological-structural cross sections.

Detailed program

Course of Structural geology:

Stress and strain.

Simple shear and pure shear.

Fundamental equations and relations in different conditions of pressure, temperature and time.
The scale of deformations.
The principal types of deformations: faults, characteristics, types, classification based on their dip and kinematics, methods and limits of reconstructing fault kinematics, problems and limits for the calculus of fault offset, faults with

and without morphological features, possible causes and interactions between endogenous dynamics and exogenous modelling. Possible associations of reverse, transcurrent and normal faults.
Folds: nomenclature, scale, amplitude, wavelength, persistence, coherence and interference, styles in relation with rock rheology, origin of stresses, and crustal environment.
Foliations and scistosity.
Fractures and tectonic joints, types, characteristics, causes and environment of formation.
The main structures linked with magmatic stress and methods for distinguishing them from the tectonic deformations s.s.
Geology of earthquakes. Main methods for the application of structural geology as a contribution for the assessment of seismic hazard. examples of areas in Italy under seismic threat.

Prerequisites

Base knowledge of geology. Course on security on the field.

Teaching form

- Frontal lessons.
- Praticals.
- Two daily excursions.

Textbook and teaching resource

Tibaldi Alessandro, 2015. Fondamenti di Geologia Strutturale. Lulu Press, Raleigh, USA, 231 pp (available on: www.Lulu.com).

Semester

Second semester

Assessment method

- Frontal part (lessons): written exam on 4 questions related to the course and mark out of thirty.
- Practice: the exam focuses on the development of 2 geological sections and their evaluation out of thirty.
- Field trip: the learning path in the two days will be evaluated.
- The final grade is a weighted average of the three grades, expressed as rank/30.

Office hours

By appointment fixed by email.

Sustainable Development Goals