UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Structural Geology

2122-2-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) and the course of “Geologic cartography”.

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.

Teaching form

Course of Structural geology: Lessons plus one day of field excursion.

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

Averaged ranking resulting from the two ranks obtained in the two courses, expressed as rank/30.

Written or Oral exam, depending on the COVID pandemic situation.

Office hours

By appointment fixed by email.