

26434 - Clay Geology

Syllabus Information

Academic Year: 2022/23

Subject: 26434 - Clay Geology

Faculty / School: 100 - Facultad de Ciencias

Degree: 296 - Degree in Geology

588 - Degree in Geology

ECTS: 5.0

Year: 4

Semester: First semester

Subject Type: Optional

Module:

1. General information

1.1. Aims of the course

SDG 4: Quality Education

2. Learning goals

3. Assessment (1st and 2nd call)

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

The methodology followed in this course is oriented towards the achievement of the learning objectives. A wide range of teaching and learning tasks are implemented, such lectures, laboratory sessions, fieldwork and seminars.

4.2. Learning tasks

This course is organized as follows:

- **Lectures** (27 hours). Learning of concepts related to the properties, structure, composition and formation of clays.
- **Laboratory sessions** (1 ECTS). Use of X-ray diffraction and scanning electron microscopy to characterize clays.
- **Fieldwork** (0.5 ECTS). Identify and describe clay mineral associations in their geological context. 1-day field trip to study a deposit rich in industrial clays.
- **Seminars** (0.8 ECTS). Searching and summary of information related to clays.

Teaching and assessment activities will be carried out on site for as long and as much as possible. This scenario could change if safety regulations related to the covid19 crisis recommended online activities.

4.3. Syllabus

This course will address the following topics:

Lectures

- Topic 1. Introduction. Definition of clay. Importance of the clay minerals.

- Topic 2. Mineralogy, composition and properties of the clay minerals.
- Topic 3. Appropriate methods to study clays.
- Topic 4. Origin of clays by rock Weathering and soil formation
- Topic 5. Erosion, Sedimentation and Sedimentary Origin of Clays
- Topic 6. Genesis of clays during diagenesis, very-low grade metamorphism and hydrothermal alteration.
- Topic 7. Industrial Clays. Applications of clay minerals.

4.4. Course planning and calendar

- Practice sessions will take place in the Crystallography and Mineralogy labs (Earth Sciences Department) and in the Electron Microscopy Service (Campus Rio Ebro, University of Zaragoza).
- Days for the field trip and the Electron Microscopy activity will be scheduled by the Commission of the Degree in Geology.
- Oral presentations will take place during the months of April and May and days will be agreed with the students.

Further information concerning the timetable, classroom, office hours, assessment dates and other details regarding this course will be provided on the first day of class or please refer to the Faculty of Sciences and Earth Sciences Department websites (<https://ciencias.unizar.es>, <https://cienciatierra.unizar.es>) and Moodle.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=26434>