

## Stratigraphy

Code: 101064  
ECTS Credits: 6

2024/2025

Degree	Type	Year
2500254 Geology	OB	2

### Contact

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### Teachers

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### Teaching groups languages

You can view this information at the [end](#) of this document.

### Prerequisites

Although there is no official prerequisite, students are advised to have good knowledge of the subjects that were taken during the first year of degree, particularly: Fundamentals of Geology (Fonaments de Geologia) and field work of Regional Geology (Trellall de camp de Geologia Regional).

### Objectives and Contextualisation

Training objectives of the subject:

Acquire the theoretical and practical knowledge about the descriptive and

Objectives of the practices:

- Recognize rocks and sedimentary structures in the laboratory and in the field
- Representation of stratigraphic sections
- Establish simple stratigraphic correlations

## Competences

- Describe stratigraphic successions and their temporal dimension and use correlation and interpretation techniques.
- Display understanding of the size of the space and time dimensions of Earth processes, on different scales.
- Draw up and interpret geological maps and other means of depicting geological information (columns, correlation frames, geological cross-sections, etc.)
- Learn and apply the knowledge acquired, and use it to solve problems.
- Process, interpret and present field data using qualitative and quantitative techniques, and suitable computer programmes.
- Work in teams, developing the social skills needed for this.

## Learning Outcomes

1. Draw up stratigraphic columns and correlation frames.
2. Interpret the spatial and temporal significance of stratigraphic successions and the different types of lithostratigraphic units with chronostratigraphic value.
3. Learn and apply the knowledge acquired, and use it to solve problems.
4. Make stratigraphic columns and correlation frames and geological maps based on lithostratigraphic and chronostratigraphic units.
5. Process stratigraphic and sedimentological data from the field in order to produce new synthesis data and documents.
6. Work in teams, developing the social skills needed for this.

## Content

### PROGRAM OF THEORETICAL CLASSES

- 1-Introduction to Stratigraphy: definition, principles and objectives
- 2-Transport and sediment structures: introduction, selective transport, mass transport
- 3- Sedimentary structures (depositional and non-depositional).
- 4-Formation of sedimentary rocks: meteorization and its products and diagenesis.
- 5-Clastic sedimentary rocks: components and classification.
- 6-Carbonate sedimentary rocks: components and classification.
- 7-Transgressions, regressions, cyclicity and sequence stratigraphy
- 8-Stratigraphic exploration of georesources.

### PROGRAM OF LABORATORY PRACTICES

- Origin and type of sediment grains (carbonates)
- Origin and type of sediment grains (terrhenes)
- Sedimentary structures I and paleocurrent measurement
- Sedimentary structures II

Preparation of stratigraphic sections and use of the Jacob staff. Creation of stratigraphic columns

## PROGRAM OF CAMPING PRACTICES

- a) Regional geological context.
- b) Recognition of formation and sedimentary rocks in space and time
- c) Recognition of sedimentary structures and paleocurrent measures
- d) Raise a local stratigraphic series. Use of the granulimeter, metric tape and stick of Jacob

## Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Field work	14	0.56	1, 3, 4, 6
Laboratory practices	19	0.76	3, 4, 5, 6
Theoretical lessons	18	0.72	2, 5
Type: Supervised			
Elaboration of works derived from laboratory or field practices	14	0.56	1, 4
Group or individual mentoring	3	0.12	1, 2, 3, 4, 5, 6
Type: Autonomous			
Study, consult of references, report performance	75	3	

### 1.- Managed activities

#### Theory lessons:

The program contents will be taught mainly by the teacher in the form of theoretical classes. The student acquires the scientific-technical knowledge of the course by attending the classes and complementing them with the personal study of the explained topics. These sessions can be complemented with questions and simple exercises that are interrelated with the explanations.

Part of the material used in class by the teacher will be available on the Virtual Campus of the subject. It is recommended that students regularly consult the books and recommended web links in order to consolidate, clarify and extend the contents explained in class.

#### Laboratory practices:

Both field and laboratory practices will facilitate to understand and consolidate the contents of the theory program. They also familiarize the student to the data obtaining procedure, treatment and application to create stratigraphic columns.

The student will have downloaded the practice script for the virtual campus, which will be developed during that group session of two or three people. This practical work involves the prior knowledge of

the theory and the application of it in a practical example. Students must complete the document that the teacher of the subject can request at the end of the session (individually or by group).

Eventually, each student will release to the teacher the compilation of all practical, duly corrected and expanded practises.

#### Field practices

These consist of two field trips where several types of materials and structures will identified. It will work with granulimeter, magnifying glass, compass to measure paleocurrents, measuring tape and Jacob's staff. This information will be discussed later in laboratory practices.

Special emphasis will be placed on the student collecting all the data in the field book, which can be evaluated.

#### 2.- Supervised activities

Two types of supervised activities are proposed:

- a) Elaboration of works derived from laboratory and field practices by groups
- b) Group and individual tutorials in order to support the training activities indicated above.

#### 3.- Autonomous activities

Includes study, work preparation and reading of bibliography

Annotation: Within the schedule set by the centre or degree programme, 15 minutes of one class will be reserved for students to evaluate their lecturers and their courses or modules through questionnaires.

## Assessment

### Continous Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Contents of the practices in the partial and final exams.	20	0.5	0.02	1, 3, 4, 5, 6
Final recovery test	0	0	0	1, 2, 3, 4, 5
Score of the laboratory practices	0	0.5	0.02	1, 4
Theoretical contents of the partial anf final tests	80	6	0.24	1, 2, 3, 4, 5

The overall grade of the subject will assess the knowledge acquired by the student in the different activities: theoretical classes, laboratory practices, field practices

The evaluation of the subject will be individual and continued through the

#### 1.- Theoretical contents of the exam (80%)

During the semester there will be two compulsory partial written tests on Students can bring their own handwritten notes to the exam. It is express

## 2.- Practical contents of the exam (20%)

This part of the final and partial examinations will be based on the content

Students can bring their own handwritten practises to the exam. It is expressly forbidden to have them printed from

3.-Field practices The evaluation of field work (which is absolutely compulsory even, for students repeating the subject)

## ON THE SINGLE EVALUATION

The single evaluation will consist on a theoretical exam plus the practical work release, except for those that have to be fulfilled during the development of the practise.

The score will be calculated in the same way as in the continuous evaluation.

Attendance at field trips and practises will be mandatory.

Eventual field-trip exercises that are carried out during the excursion will be released before the trip finishes.

Students can bring their own handwritten notes and practises.

## Bibliography

- Boggs, S. (2006).- Principles of Sedimentology and Stratigraphy, 4th ed., Pearson-Prentice Hall
- Brookfield M.E. (2004). Principles of Stratigraphy. Blackwell Publishing, Oxford, 340 or
- James, N.P. & Dalrymple, R.W. (2010). Facies models, 4. Geotext. 6. Geological association of Canada.
- Nichols, G. (2009) Sedimentology & Stratigraphy. Blackwell Science.
- Vera, J. (1994) Estratigrafia (principios y métodos). Madrid: Rueda.

#### Enllaços web

<http://cit.iec.cat>

<http://www.lib.utexas.edu/>

<http://www.stratigraphy.org/>

<http://strata.geol.sc.edu/exerices/ExercisePrintOuts.html>

[http://facstaff.gpc.edu/~pgore/geology/historical\\_lab/contents.php](http://facstaff.gpc.edu/~pgore/geology/historical_lab/contents.php)

<http://www.bib.ub.edu/recursos-informacio/guies-tematiques/geologia/#c4820>

#### Software

Inkscape

#### Language list

Name	Group	Language	Semester	Turn
(PCAM) Field practices	1	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	1	Catalan	first semester	morning-mixed
(PLAB) Practical laboratories	2	Catalan	first semester	morning-mixed
(TE) Theory	1	Catalan	first semester	morning-mixed