

Palaeontology I

Code: 101049
ECTS Credits: 6

Degree	Type	Year	Semester
2500254 Geology	OB	2	1

Contact

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Use of Languages

Principal working language: catalan (cat)
Some groups entirely in English: No
Some groups entirely in Catalan: Yes
Some groups entirely in Spanish: No

Other comments on languages

Some material could be in Spanish or English.

Teachers

Enric Vicens Batet
Victor Fondevilla Moreu
Marc Furio Bruno
Carme Boix Martinez
Bernat Vila Ginesti

Prerequisites

This subject requires prior knowledge of:

- Geology
- Biology: fundamentals, taxonomy, microevolution, ecology, biogeography, organisational levels of the living organisms and characteristics of the different groups (knowledge obtained through the subject Life on Earth)

Objectives and Contextualisation

Objectives: to know and understand the fossil record in order to use it properly for the resolution of geological problems, whilst also taking into account its contribution to fundamental aspects of biology.

Contextualization: The subject "Palaeontology" is subdivided into the units Palaeontology I and Palaeontology II, which are taught, respectively, in the first and second semester of the second year of the Degree in Geology.

General Palaeontology and certain groups of the fossil record are taught in Palaeontology I. Specifically, those that (1) are most useful for illustrating the concepts of general palaeontology and/or (2) are less complex and/or (3) are considered essential for the student to know but cannot be studied in fuller detail.

The fossil record of the groups that (1) are considered most complex and/or, (2) require a fuller treatment and/or, (3) have important geological applications will be taught in Palaeontology II.

Competences

- Display knowledge of the techniques for identifying the principal fossil groups and use them to date and interpret ancient sedimentary environments, and relate them to the history of the Earth.
- Display understanding of the size of the space and time dimensions of Earth processes, on different scales.
- Obtain information from texts written in other languages.
- Process, interpret and present field data using qualitative and quantitative techniques, and suitable computer programmes.
- Recognise theories, paradigms, concepts and principles in the field of geology and use them in different areas of application, whether scientific or technical.
- Suitably transmit information, verbally, graphically and in writing, using modern information and communication technologies.
- Use concepts from biology when solving problems in geology.
- Work independently.

Learning Outcomes

1. Apply concepts from biology to understanding of the fossil record.
2. Apply the principle of overlap and the evolution of species.
3. Discern and describe laboratory techniques for studying the different types of fossils and quantify the associated information.
4. Display knowledge of the techniques for identifying the principal fossil groups and use them to date and interpret ancient sedimentary environments, and relate them to the history of the Earth.
5. Identify and distinguish between the processes that give rise to the fossil record.
6. Obtain information from texts written in other languages.
7. Relate concepts and theories in palaeontology.
8. Suitably transmit information, verbally, graphically and in writing, using modern information and communication technologies.
9. Work independently.

Content

GENERAL PALAEOLOGY

1. Palaeontology
2. Taphonomy
3. Morphology
4. Palaeoecology
5. Ichnology
6. Macroevolution
7. Biostratigraphy

8. Palaeobiogeography

FOSSIL RECORD

9. Microfossils *

10. Plants

11. Porifera and Cnidaria

12. Molluscs (*)

13. Trilobites *

14. Brachiopods

15. Bryozoans*

16. Echinoderms

17. Graptolites*

18. Vertebrates

* shows the fossil groups taught in Palaeontology II.

(*) shows the fossil groups taught in Palaeontology I and II.

Methodology

Lectures: Students will acquire the necessary scientific-technical knowledge for the course in the lectures.

Laboratory classes: Attendance is mandatory; these classes will take place in 2 hour-long sessions per week at the Palaeontology laboratory. Practical classes will consist of the observation of the distinct fossil groups previously presented in the theory classes. Microscopes will be used on small-sized fossils. Students will be introduced to the determination of fossil in section.

Seminar: a single session in which the students will analyse a scientific paper.

Independent activities: students must complement the above activities with personal work and study.

Activities

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Laboratory work	23	0.92	1, 2, 4, 3, 5, 6, 7
Lectures	26	1.04	1, 2, 4, 3, 5, 6, 7
Seminar	3.5	0.14	1, 2, 4, 3, 5, 6, 7, 8, 9
Type: Supervised			
Exercises	15	0.6	1, 2, 4, 3, 6, 7, 8
Type: Autonomous			
Personal study and work	75	3	1, 2, 4, 3, 5, 6, 7

Assessment

All students registered on this subject (whether for the first time or not) are required to carry out the same activities (lectures, laboratory classes and seminar) and will be subject to the same assessment criteria.

Assessment of this subject is based on the following elements:

- Two exams that will include theory and practical work, representing (in total) 75% of the final grade.

A minimum grade of 4 is required in each exam in order for an average overall grade to be calculated with the other course grades. Students who have obtained a grade lower than 4 in any of the exams must present themselves for re-assessment at the end of the course. The marks used to calculate the final grade will be those obtained in re-assessment.

- Laboratory-session exercises: 15%. Attending laboratory classes is mandatory. Students attending less than 80% of the practical sessions will not be eligible for assessment and will be awarded the grade of *Fail* (0) for laboratory classes. There is no re-assessment for the practical exercises.

- Evaluation of participation and presentation of papers in the seminar: 10%

A minimum overall grade of 5 is required to pass the subject.

Assessment Activities

Title	Weighting	Hours	ECTS	Learning Outcomes
Exams	75%	7.5	0.3	1, 2, 4, 3, 5, 6, 7, 8
Exercises in laboratory sessions	15%	0	0	1, 2, 4, 3, 5, 6, 7, 8, 9
Seminar	10%	0	0	1, 2, 4, 3, 5, 6, 7, 8

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