

Palaeontology II

Code: 101048
ECTS Credits: 6

2024/2025

Degree	Type	Year
2500254 Geology	OB	2

Contact

Name: Judit Marigo Cortes

Email: judit.marigo@uab.cat

Teachers

Judit Marigo Cortes

Pedro Piñero García

Aixa Tosal Alcobé

Marcos Furio Bruno

Angel Hernandez Lujan

Teaching groups languages

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

Prerequisites

Specifically, this subject requires prior knowledge obtained through the following subjects: Life on Earth and Palaeontology I.

Objectives and Contextualisation

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.

Palaeontology II focusses on the fossil record of those groups not taught in Palaeontology I, which include a part of the invertebrates and the microfossils. Their morphology and certain geological applications (biostratigraphy, palaeoecology, palaeobiogeography) will be studied.

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.
- Evaluate and carry out the selection and collection of suitable geological samples.
- Learn and apply the knowledge acquired, and use it to solve problems.
- Obtain information from texts written in other languages.
- Process, interpret and present field data using qualitative and quantitative techniques, and suitable computer programmes.
- Process, interpret and present laboratory 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.
- Synthesise and analyse information critically.
- Work in teams, developing the social skills needed for this.
- Work independently.

Learning Outcomes

1. Apply the principle of overlap and the evolution of species.
2. Carry out a palaeontological sampling and reference it in the local and regional stratigraphic context.
3. Digitally process palaeontological field data.
4. Discern and describe laboratory techniques for studying the different types of fossils and quantify the associated information.
5. 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.
6. Learn and apply the knowledge acquired, and use it to solve problems.
7. Obtain information from texts written in other languages.
8. Relate concepts and theories in palaeontology.
9. Synthesise and analyse information critically.
10. Work in teams, developing the social skills needed for this.
11. Work independently.

Content

- Introduction to Micropaleontology.
- Microfossils (Foraminifera).
- Calcareous "algae".
- Palynomorphs.
- Graptolites.
- Bryozoans.
- Brachiopods.
- Conodonts.
- Trilobites.
- Plants.
- Biostratigraphy.
- Paleobiogeography.

Any changes / adaptations of these contents, as well as of the teaching methodology used, will be announced on the Campus Virtual.

Activities and Methodology

Title	Hours	ECTS	Learning Outcomes
Type: Directed			
Fieldwork	7.5	0.3	2, 5, 9
Laboratory work	19.5	0.78	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Lectures	26	1.04	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11
Type: Supervised			
Exercises	15	0.6	3, 4, 9
Type: Autonomous			
Personal study and work	75	3	3, 6, 7, 8, 9, 10, 11

Lectures: Students will acquire the necessary scientific-technical knowledge for the course in the lectures. Deliverable exercises related to the subject taught may be included during lectures. These exercises will be evaluated together with lab classes.

Laboratory classes: Attending laboratory classes is mandatory; these classes will take place in 2 hour-long sessions per week at the Palaeontology laboratory mainly, although some of them may be online. 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 sections (in rock samples and thin-section), as well as observation of 3D models. Exercises carried out in laboratory classes or as independent work will be submitted on the dates determined by the lecturers.

Fieldwork: Attendance is mandatory. Students will visit one or more areas to put into practice the knowledge acquired in the lectures and laboratory classes.

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

Instructors should spend approximately 15 minutes in a class to allow their students to answer the surveys for evaluating teaching performance and evaluation the subject or module.

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
Exams	70%	4	0.16	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11

Field trip	15%	0	0	2, 5, 6, 8, 9, 10, 11
Practical classes	15%	3	0.12	1, 2, 3, 5, 6, 8, 9, 10, 11

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 field trips) and will be subject to the same assessment criteria:

Exams: They represent 70% of the final grade. These will take place during the course and will include all content covered in lectures, practical classes and the field trip. A minimum mark of 4 is required in each exam to average with the other course grades. Students who have obtained a grade lower than four must present themselves for re-assessment of the tests.

Laboratory classes and field trip: Attending the laboratory classes and field trip 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. Non-attendance of the field trip on the day established will result in a *Fail* (0) for this activity. There is no re-assessment for the practical exercises or field trip.

Students will not be allowed to hand in practicals and exercises from previous courses, even if the subject is retaken.

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

Schedule of the assessment activities

The dates of the assessment activities and the submission of exercises will be published in the Campus Virtual (CV). They may be subject to changes in programming due to unforeseen eventualities. Any modification will be announced through this platform.

Assessment activities will not be permitted for any student at different dates or times than the ones already established, unless for justified causes duly advised before the activity, and with the lecturer's previous consent. In all other cases, if an activity has not been carried out, this cannot be re-assessed.

Irregularities committed by the student, copy and plagiarism

According to the UAB academic regulations, assessment activities will be qualified with a zero (0) whenever a student commits academic irregularities that may alter such assessment.

Irregularities contemplated in this procedure include, among others:

- the total or partial copying of a test, practical exercise, report, or any other evaluation activity;
- allowing others to copy;
- presenting group work that has not been done entirely by the members of the group;
- presenting any materials prepared by a third party as one's work, even if these materials are translations or adaptations, including work that is not original or exclusively that of the student;
- having communication devices (such as mobile phones, smartwatches, etc.) accessible during theoretical-practical assessment tests (individual exams).

SINGLE ASSESMENT

For students who request a single assessment of the subject, there will be a final test that will consist of an exam (70% of the grade).

The practical sessions (15% of the grade) and the field trip (15% of the grade) are mandatory, and therefore cannot be recovered in the final exam.

- In general, the date of the single assessment tests will coincide with the final exam that the rest of the students will take.

- Those students who would like to request the single assessment will have to do so between February 12th and 29th 2024 (2nd semester).

Bibliography

- Armstrong, H.A., Brasier, M.D. 2005. *Microfossils* (second edition). Blackwell Publishing, Oxford. 296 p. ISBN 0 632 05279 1 Paris. 408 p. (56 Bab)
- Black, R.M. 1988. *The Elements of Palaeontology*. Cambridge University Press. Cambridge. 404 p. ISBN 0 521 34836 6 (56 Bla)
- Boardman, R.S., Cheetham, A.H., Rowell, A.J. 1987. *Fossil invertebrates*. Blackwell Scientific Publications. Oxford. 713 p. ISBN 0 86542 302 4 (562 Fos)
- Caus, E., Serra-Kiel, J. 1992. *Macroforaminífers*. Servei geològic de la Generalitat de Catalunya.
- Clarkson, E.N.K. 1979. *Invertebrate Palaeontology and Evolution*. George Allen & Unwin, London. 323 p. ISBN 0 04 560008 2 (562Cla)
- Clarkson, E.N.K. 1998. *Invertebrate Palaeontology and Evolution*. 4th ed. Blackwell Science, Oxford. 452 p. ISBN 0 632 05238 4 (562 Cla)
- Cowen, R. 2000. *History of Life*. Blackwell Science. Oxford. 432 p. ISBN 0 632 04444 6 (56 Cow)
- Doménech, R., Martinell, J., (Martín-Closas, C.) 1996. *Introducción a los fósiles*. Masson. Barcelona. 288 p. ISBN 84 458 0404 9 (56Dom)
- Doyle, P. 1996. *Understanding Fossils. An Introduction to Invertebrate Palaeontology*. John Wiley & Sons. Chichester. 409 p. ISBN 0 471 96351 8 (562 Doy)
- Foote, M., Miller, A.I. 2007. *Principles of Paleontology* (third edition). W.H. Freeman and Co. New York. 354 p. ISBN 13 978 0 7167 06137 (56Foo)
- Fortey, R. 2006. *¡Trilobites! Laetoli, Pamplona*. 308 p. ISBN 84 9348623 X ()
- Gallermí, J. (Coordinador). 1988. *El registre fòssil. Història Natural dels Països Catalans*. T 15. Ed. Enciclopèdia Catalana. 438 p. ISBN 84 7739 022 3 ()
- Hammer, O., Harper, D.A.T. 2006. *Paleontological data analysis*. Blackwell Publishing. 351 p. ISBN 1405115440 (56 Ham)
- Lethiers, F. 1998. *Évolution de la biosphère et événements géologiques*. Gordon and Breach Science Publications GIB. 321 p. ISBN 90 5699 124 8 (551 Let)
- Levi-Setti, R. 1975. *Trilobites*. University of Chicago Press. Chicago. 213 p. ISBN 0 226 474488 (562 Lev)
- López, N., Truyols, J. 1994. *Paleontología*. Editorial Síntesis. Madrid. 334 p. ISBN 84 7738 249 2 (56 Lop)
- Majewske, O.P. 1974. *Recognition of invertebrate fossil fragments in rocks and thin sections*. E.J. Brill, Leiden. (562 Maj)
- Martínez Chacón, M.L., Rivas, P. 2009. *Paleontología de invertebrados*. Sociedad Española de Paleontología. Oviedo. 524 p. ISBN 978 84 613 4625 7 (562 Pal)
- McGowran, B. 2005. *Biostratigraphy. Microfossils and Geological time*. Cambridge University Press, Cambridge. 459 p. ISBN 0 521 83750 2 (551 Mcg)

- McNamara, K., Long, J. 1998. The Evolution Revolution. Wiley. Chichester. 298 p. ISBN 0 471 97406 4 (56 McN)
- Meléndez, B. 1998. Tratado de Paleontología, I. CSIC. Madrid. ISBN 84 00 07790 3 (56 Mel)
- Molina, E. (editor) 2004. Micropaleontología (2a edición). Prensas Universitarias de Zaragoza, Zaragoza. 704 p. ISBN 84 7733 744 6 (560 Mic)
- Moore, R.C.(Editor, diversos anys, diversos volums) Treatise on Invertebrate Paleontology. Cada grup d'invertebrats es tractat en volums diferents. (es troben normalment al laboratori de pràctiques)
- Murray, J.W. 1985. Atlas of invertebrate microfossils. Ed. Longman. Essex. 241 p. ISBN 0 582 30099 1 (562 Atl)
- Palmer, D., Rickards, B. 1991. Graptolites. Boydell Press. Woodbridge. 166 p + 138 pl. ISBN 0 85115 262 7 (562 Gra)
- Smith, A.B. 1984. Echinoid Palaeobiology. George Allen & Unwin. London. 190 p. ISBN 0 04 563001 1 (560 Smi)
- Smith, A.B. 1994. Systematics and the fossil record. Documenting revolutionary patterns. Blackwell Science. Oxford. 223 p. ISBN 0 63203642 7 (56 Smi)
- Smith, A.B., Batten, D.J. 2002. Fossils of the Chalk. Palaeontological Association, London. 374. ISBN 0 901702 78 1 (56 (4) Fos)
- Whittington, H.B. 1992. Trilobites. Boydell Press. Woodbridge. 145 p +120 pl. ISBN 0 85115 311 9 (562 Whi)

WEB SITES

TRILOBITES. www.trilobite.info

AMMONITES. www.ammonites.fr

ICS. International Commission on Stratigraphy. www.stratigraphy.org

PALEOMAP PROJECT. Christoffer R. Scotese. www.scotese.com

RON BLAKE MAPS. Global Paleogeography. <https://deeptimemaps.com/>

Software

-

Language list

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

PROVISIONAL