GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2022-2023

Field Course: Biosphere Evolution and Stratigraphy (C002646)

Due to Covid 19, the education and evaluation methods may vary from the information displayed in the schedules and course details. Any changes will be communicated on Ufora.

Course size *(nominal values; actual values may depend on programme)*

Credits 6.0 **Study time 150 h** **Contact hrs** 90.0 h

Course offerings and teaching methods in academic year 2022-2023

A (year)	English	Gent	excursion	22.5 h
			lecture	5.0 h
			integration seminar	40.0 h
			fieldwork	22.5 h

Lecturers in academic year 2022-2023

Louwye, Stephen	WE13	lecturer-in-charge
Vandenbroucke, Thijs	WE13	co-lecturer

Offered in the following programmes in 2022-2023	**crdts**	**offering**
Master of Science in Teaching in Science and Technology (main subject Geology)	6	A
Master of Science in Geology	6	A
Master of Science in Geology	6	A

Teaching languages

English

Keywords

Field course, Boulonnais, Pembrokeshire

Position of the course

Field course in the Boulogne area (northern France) and Pembrokekshire (SW Wales) with focus on different integrated, geological subdisciplines, with emphasis on stratigraphy, sedimentology, palaeontology and biosphere evolution.

Contents

The students will be confronted with all geological aspects of the visited area: structural framework, tectonic style, stratigraphical succession, sedimentological characteristics, presence of fossils, mineralogical and petrographical characteristics, etc, of the rocks. Comparison between ancient and modern sedimentary environments. Special attention is paid to the evolution of the biosphere and the interaction with the geosphere. Introductory seminars on the geological framework: literature study and cartographic exercises.

Part 1 (Pembrokeshire):

From its volcanic origins in the late Precambrian, Wales gave birth to a sedimentary marine basin in the Cambrian Period that endured for some 100 million years. In Welsh strata are preserved the story of Earth's first complex marine ecosystems during the Cambrian substrate revolution, and the birth of a global macrozooplankton and complex planktonic ecosystems during the Great Ordovician Biodiversification Event. Here too, are preserved some of the first rivers to flow in a meandering pattern on Earth – witness to the extension and impact of a terrestrial biosphere during the Devonian, now fossilised in strata of Pembrokeshire. We'll illustrate how Earth's biosphere became diverse and resilient. How it responded to, and survived, the great upheaval of the end Ordovician extinction. On this 5-day field excursion we will traverse the story of the early Palaeozoic Welsh depositional basin, from its terrestrial

margins, through shallow marine settings into the deep abyss of its centre, glimpsing ancient and sometimes bizarre seabed ecosystems from deep beneath the ancient sea, and understanding the history, facies and biota of perhaps the most remarkable and best studied Lower Palaeozoic Basin on Earth. Alternated demonstrations and guided excercises.

Part 2 (Boulonnais):

An introduction to the local geology is given during the first two-three days of the five day field couse. Later in the field course exercises are organized in group or individually: geological mapping, detailed lithostratigraphical logging followed by a sequence stratigraphical analysis of a section; fossil collection in a section followed by identification of the fossils and biozonation of that section.

After the fieldwork during seminars and a self- reliant study activity, a scientific paper is written in groups of 2-3 students on a specific aspect of the area. An introduction to the retrieval of scientific literature is given (afternoon) during the first weeks of the first semester.

Initial competences

Bachelor of Science in Geology

Final competences

1 Possess a thorough integrated insight in an area with varying lithologies, ages, depositional environments, ages, different fossil groups and taphonomies.
2 Possess insight in the depositional history of the Paleozoic strata of Pembrokeshire, and through the Mesozoic and Quaternary times of the Boulonnais area.
3 Carry out independently biostratigraphical fieldwork and report.
4 Develop a strategy for geological samling.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Excursion, lecture, integration seminar, fieldwork

Extra information on the teaching methods

Lectures on the general geology of the area to be visited, as preparation for the field course; after the field course an introduction on how to write a scientific article.

Field Course: during a number of half days in the beginning of the excursion selected outcrops are visited and discussed together with small tasks of observation and drawing of outcrops or of specific structures, collecting of fossils, measurements of geological structures.

Fieldwork: biostratigraphical sampling, identification of fossils, biozonation and determination of the relative age of a section; geological mapping of a coastal beach section; lithostratigraphical logging of a section, reconstruction of the palaeo-environment of sedimentation using sedimentological and palaeontological characters and sequence- stratigrafical analysis.

Integration seminar: after the field course a scientific article is written in groups of 2-3 students, based on own observations and on a literature study. The subject is on an specific age or aspect of the visited area or surroundings.

because of COVID19, modified forms of work can be rolled out if this proves necessary

Learning materials and price

Excursion package consists of geological guides and maps. plus lodging, museum, and travel cost from and to Ghent (but not drinks and certain lunches): 350 Euro.

References

Geological maps and regional-geological literature.

Course content-related study coaching

Possibility to ask questions on the field. Supervision on the field by the teachers and assistants.

Evaluation methods

continuous assessment

Examination methods in case of periodic evaluation during the first examination period

Examination methods in case of periodic evaluation during the second examination period

Examination methods in case of permanent evaluation

Assignment, report

Possibilities of retake in case of permanent evaluation

examination during the second examination period is not possible

Extra information on the examination methods

Daily evaluation based on the fieldwork and the discussions in the field (oral report at least once in the week). Immediately after the field course: evaluation of the written field notes, drawings, exercises of geological mapping, lithologs, palaeoenvironmental reconstruction and sequence-stratigraphical analysis (made during or immediately after the field course).
Partim Boulonnais: Written report after the field course in the form of a scientific article on a specific age or aspect of the visited area or surroundings and based on a study of the existing literature.
Form and contents of the examination are explained at during the field course.

Calculation of the examination mark

Non periodic evaluation: 100%
(Partim Boulonnais: 50%; partim Wales: 50%)