



Module Specification

Earth Materials

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Part 1: Information

Module title: Earth Materials

Module code: UBGMP8-30-1

Level: Level 4

For implementation from: 2023-24

UWE credit rating: 30

ECTS credit rating: 15

Faculty: Faculty of Environment & Technology

Department: FET Dept of Geography & Environmental Mgmt

Partner institutions: None

Field: Geography and Environmental Management

Module type: Module

Pre-requisites: None

Excluded combinations: None

Co-requisites: None

Continuing professional development: No

Professional, statutory or regulatory body requirements: None

Part 2: Description

Overview: Not applicable

Features: Not applicable

Educational aims: See Learning Outcomes

Outline syllabus: The composition of the Earth.

Crystal symmetry, atomic structure and bonding, mineral lattices.

Polarising microscope optics and interference colours.

Oxide, silicate and carbonate minerals and classification.

Isosilicates: olivines, solid solution series.

Chain silicates: pyroxenes and amphiboles, phase diagrams.

Sheet silicates: micas.

Framework silicates: feldspars, quartz, phase transitions.

Carbonates, mineral cements.

Economic minerals.

Igneous, and metamorphic rocks, classification and identification.

Principal theories and concepts in sedimentology, facies and associations.

Sediments.

Clastic sedimentary rocks, classification, provenance, sedimentary structures.

Coal. Chemical sedimentary rocks: ironstone, chert, evaporites.

Carbonates, classification, fossils.

Volcaniclastic sedimentary rocks.

Diagenesis, burial, changes in composition, cementation, dissolution.

Weathering and alteration products.

Part 3: Teaching and learning methods

Teaching and learning methods: Students will receive 3 hours' contact time per week. This is essentially a laboratory-based module and practical sessions will be introduced by a short lecture and demonstration. One-to-one support will be provided during practical sessions and via email.

Scheduled learning on this module includes lectures, demonstrations and practical classes and some field exercises. Independent learning includes hours engaged with essential reading, completion of practical work, assignment preparation and completion. These sessions constitute an average time.

Module Learning outcomes: On successful completion of this module students will achieve the following learning outcomes.

MO1 Demonstrate a broad knowledge of constituent materials of the Earth's crust

MO2 Demonstrate an understanding of common mineral groups, their structure and properties

MO3 Describe, identify and interpret common minerals using hand specimens and thin sections

MO4 Articulate key concepts and principles in sedimentology

MO5 Identify and interpret the sedimentary and diagenetic processes involved in the formation of sedimentary rocks

MO6 Describe, identify and interpret common igneous, metamorphic and sedimentary rock types in outcrop, hand specimen and thin section

MO7 Demonstrate independent engagement with academic literature

Hours to be allocated: 300

Contact hours:

Independent study/self-guided study = 228 hours

Face-to-face learning = 72 hours

Total = 300

Reading list: The reading list for this module can be accessed at [readinglists.uwe.ac.uk](https://uwe.rl.talis.com/modules/ubgmp8-30-1.html) via the following link <https://uwe.rl.talis.com/modules/ubgmp8-30-1.html>

Part 4: Assessment

Assessment strategy: Summative assessment:

Practical examinations (2 x 2 hours). Learning outcomes 1-6.

Examination 1 based on minerals, igneous and metamorphic rocks.

The emphasis will be on identification and interpretation of minerals and rocks in hand specimen and thin section. It will test understanding of mineral properties and mineral assemblages in different rock types.

Examination 2 based on sedimentary rocks.

The emphasis will be on identification and interpretation of clastic and carbonate rocks in hand specimen and thin section. It will test students' understanding of lithification and sedimentary processes.

The practical exams will examine students' ability to recognise and interpret minerals, sediments and rocks and apply these skills to unnamed specimens.

Assessment Task 3: Referenced poster. Learning outcomes 1, 2, 4, 5, 7.

1000 words equivalent.

The poster will be based on a field or laboratory exercise that will require students to interpret a rock-forming environment.

Students will be given recommended reading in order to help with their interpretation.

The poster will assess students' organisational and graphic presentation skills, their

ability to undertake an interpretation exercise and their engagement with relevant literature.

Formative work:

Formative work will be set weekly during practical sessions for students' self assessment. Formative work will be an integral part of the reading strategy. Students will receive preparation exercises for the summative assessment including interpretation exercises and mock exams.

Assessment tasks:

Practical Skills Assessment (First Sit)

Description: Practical examination 2 (2 hours)

Weighting: 30 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Poster (First Sit)

Description: Referenced poster

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5, MO7

Practical Skills Assessment (First Sit)

Description: Practical examination 1 (2 hours)

Weighting: 30 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6

Practical Skills Assessment (Resit)

Description: Practical exam (2 hours)

Weighting: 30 %

Final assessment: Yes

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Poster (Resit)

Description: Referenced poster

Weighting: 40 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO4, MO5, MO7

Practical Skills Assessment (Resit)

Description: Practical Examination 2 (2 hours)

Weighting: 30 %

Final assessment: No

Group work: No

Learning outcomes tested: MO1, MO2, MO3, MO4, MO5, MO6, MO7

Part 5: Contributes towards

This module contributes towards the following programmes of study: