MODULE SPECIFICATION

Part 1: Information			
Module Title	Igneous and Metamorphic Petrology		
Module Code	UBGMK8-15-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	15	ECTS Credit Rating	7.5
Faculty	Faculty of Environment & Technology	Field	Geography and Environmental Management
Department	FET Dept of Geography & Envrnmental Mgmt		
Module type:	Standard		
Pre-requisites	None		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description

Overview: An exploration of mineralogy and geochemistry resulting from the key igneous and metamorphic processes which impact global and regional geology, and how they can be observed in rock specimens.

Features: Module Entry Requirements:
Students must have 60 credits at Level 1

Educational Aims: The purpose of the module is to introduce students to advanced mineralogical processes, and the use of thin section and geochemical analysis to interpret complex igneous and metamorphic processes through mineralogy, textures, and microstructure. Students will become familiar with phase diagrams, solid solution series, metamorphic phase changes, and the fractional crystallisation processes leading to magma evolution. By the end of the module students will be competent in petrographic microscopy and handling and interpreting a range of geochemical data.

Outline Syllabus: The syllabus includes:
Classification and distribution of igneous rocks, association with plate margins.
Ultrabasic and basic igneous rocks.
Basalts, composition, oceanic crust.
Andesites, composition.

Origin of granites, continental crust composition.
Classification and distribution of metamorphic rocks, mineral assemblages.
Metamorphic reactions, P-T diagrams, Barrow's zones.
Low pressure metamorphism, pelites.
Migmatites, partial melting.
Contact metamorphism and mineral assemblages.

Teaching and Learning Methods: Scheduled learning on this module includes lectures, demonstrations and practical classes. The residential fieldwork sessions will aid knowledge and skills development and broaden students' experience of field geology.

Independent learning includes hours engaged with essential reading, completion of practical work, assignment preparation and completion. These sessions constitute an average time:

Activity:
Contact time (lectures, field and laboratory sessions): 36 hours
Assimilation, development of knowledge and independent reading: 64 hours
Exam preparation: 50 hours
Total study time: 150 hours

Students will receive, on average, 3 hours' contact time per week during one Teaching Block. This will be predominantly in the form of keynote lectures, covering the principles and concepts relating to igneous and metamorphic rock formation and occurrence, and practical sessions, in which students will examine igneous and metamorphic rocks in hand specimen and thin section. The practical sessions will be introduced by demonstrations. There will be a residential field excursion for students to examine igneous and metamorphic rocks and rock associations in outcrop. One-to-one support will be provided during field and practical sessions and via email.

Part 3: Assessment

Summative assessment:

Component A – Examination: To test retained knowledge and ability to communicate understanding within controlled conditions.

Component B - Report: Based on practical and self-guided study, interpreting a suite of thin section/hand specimen/geochemistry data to understand their igneous/metamorphic history.The practical component will examine students' ability to recognise and interpret igneous and metamorphic rocks. The written component will enable students to demonstrate that they have understood key principles relating to processes involved in the creation and occurrence of igneous and metamorphic rocks. Students will be able to show that they have read widely and can apply their reading to back up interpretation of rock specimens.

Formative work:

Formative work will be set during practical and field sessions for students' self assessment. Students will receive preparation exercises for the summative assessment that may include a mock exam.

First Sit Components	**Final Assessment**	**Element weighting**	**Description**
Examination (Online) - Component A	✓	50 %	Online Exam
Report - Component B		50 %	Written report (1000 words), based on practical and self-guided study , interpreting a suite of thin section/hand specimen/geochemistry data to understand their igneous/metamorphic history.

Resit Components	Final Assessment	Element weighting	Description
Examination (Online) - Component A	✓	50 %	Online Exam
Project - Component B		50 %	Written report (1000 words), based on practical and self-guided study , interpreting a suite of thin section/hand specimen/geochemistry data to understand their igneous/metamorphic history.

Part 4: Teaching and Learning Methods

Learning Outcomes

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

Module Learning Outcomes	Reference
Identify and interpret igneous and metamorphic rocks in outcrop, hand specimen and thin section	MO1
Demonstrate knowledge and understanding of principles governing mineral assemblages in metamorphic rocks	MO2
Appraise and interpret tectonic associations of metamorphic and igneous rocks and the processes leading to creation of oceanic and continental crust	MO3
Demonstrate independent engagement with academic literature and critically evaluate published results and interpretations	MO4

Contact Hours

Independent Study Hours:	
Independent study/self-guided study	114
Total Independent Study Hours:	114
Scheduled Learning and Teaching Hours:	
Face-to-face learning	36
Total Scheduled Learning and Teaching Hours:	36
Hours to be allocated	150
Allocated Hours	150

Reading List

The reading list for this module can be accessed via the following link:

https://uwe.rl.talis.com/modules/ubgmk8-15-2.html

Part 5: Contributes Towards
This module contributes towards the following programmes of study: Geology [Sep][FT][Frenchay][3yrs] BSc (Hons) 2019-20 Geology [Sep][SW][Frenchay][4yrs] BSc (Hons) 2019-20