



ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data					
Module Title	Earth Sciences				
Module Code	UZVSL3-30-1	Level	1	Version	1.1
Owning Faculty	Health and Applied Sciences	Field	Health and Social Sciences		
Contributes towards	FdSc Public and Environmental Health Cert HE Public and Environmental Studies				
UWE Credit Rating	30	ETCS Credit Rating	15	Module Type	Standard,
Pre-requisites	None		Co-requisites	None	
Excluded Combinations	None		Module Entry requirements		
Valid From	September 2012		Valid to	September 2018	

CAP Approval Date	20/11/2014
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Part 2: Learning and Teaching	
Learning Outcomes	<p>On successful completion of this module students will be able to:</p> <ul style="list-style-type: none"> • Demonstrate mathematical and statistical rules and appreciate the uncertainties of statistics in science; (Component B, element 1) • Identify the role of chemistry, physics and biology that form the basis of our understanding of the Earth's processes and current environmental issues (Component A, element 1 and element 2; Component B, element 1 and element 2) • Comprehend the earth as a dynamic system. (Component B, element 1) • Understand the importance of human impact upon Earth's

	<p>systems. (Component B, element 1)</p> <ul style="list-style-type: none"> • Explain the cycling of matter and the flows of energy into, between and within the lithosphere, hydrosphere, atmosphere and biosphere relevant to Environmental Health. (Component A, element 2) <p>In addition the educational experience may explore, develop, and practise <u>but not formally discretely assess</u> the following;</p> <ul style="list-style-type: none"> • Working as a team member • Research & study skills • Referencing skills
Syllabus Outline	<ul style="list-style-type: none"> • SCIENTIFIC INVESTIGATION TECHNIQUES: hypotheses and testing with t-test and chi-squared, decisions, use of standards. Modelling mathematical systems; relationships using equations and formulae, mathematics in science, linear relationships, exponential and logarithmic functions. Science variability; experimental uncertainty, normal distributions, Binomial and Poisson distributions, Spearman Rank Correlation, • THE EARTH AS A SYSTEM: The processes operating within and between these spheres and their interconnectivity. • EARTH PROCESSES: The study of the earth's structures, materials and processes. The chemical and physical composition of the lithosphere, hydrosphere, atmosphere and biosphere. The role of the Earth's systems in supporting life and human activities. • ENVIRONMENTAL ISSUES: The impacts on the environment of resource exploitation and waste disposal. Introduction to the major environmental issues facing the Earth system: limits to growth and sustainability.
Contact Hours/Scheduled Hours	<ul style="list-style-type: none"> • 300 hours total • 102 hours scheduled learning <p>Scheduled learning will typically include lectures, seminars, practical workshops, external visits and an interactive forum. All students are expected to attend a series of tutorials.</p>
Teaching and Learning Methods	<p>Introductory lectures are supported by case studies, visits and practical workshops.</p> <ul style="list-style-type: none"> • 300 hours study time of which 102 hours will represent scheduled learning. Scheduled learning includes lectures, tutorials, project supervision, demonstration, practical classes and workshops; fieldwork; external visits; work based learning; supervised time in studio/workshop.

	<ul style="list-style-type: none"> • Independent learning includes hours engaged with essential reading, case study preparation, assignment preparation and completion. Student study time will be organised each week with a series of both essential and further readings and preparation for practical workshops. It is suggested that preparation for lectures, practical workshops and seminars will take 4 hours per week with a further expectation of 24 hours preparation for Poster defence, 24 hours used in essay assignment planning and completion and 30 hours study in preparation for the written examination. • This module will be taught across both semesters on one day per week allowing both full and part time routes to be timetabled effectively.
<p>Reading Strategy*</p>	<p>Access and Skills The development of literature searching skills is supported by a Library seminar provided within the first semester and by the Graduate Development Programme embedded in Study Skills and Tutorial entitlement. Additional support is available through the Library Plus Services and via Moodle web pages, including interactive tutorials on finding books and journals, evaluating information and referencing. In addition additional academic study skills support is available via the HE Drop-in sessions.</p> <p>All students will be encouraged to make use of the print and electronic resources available to them through membership of both the college and the university. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. Weston College Library's web pages provide access to subject relevant resources and to the library catalogue as well as signposting the University Library's web pages. Many resources can be accessed remotely.</p> <p>This guidance will be available in the programme handbook, module handbook and via module information on Moodle.</p> <p>Essential reading: Any essential reading will be indicated clearly, along with the method for accessing it. Students may be asked to purchase a set text, be given a print study pack or be referred to texts that are available electronically.</p> <p>Further reading: Students will be encouraged to read widely using the library catalogue, a variety of bibliographic and full text databases, and Internet resources. Many resources can be accessed remotely. The purpose of this is to ensure students are familiar with current research, classic works and material specific to their interests from the academic literature.</p>

	All further reading resources will be available via both College and University libraries.
Indicative Reading List	<p>Botkin, D.B., & Keller, E.A. (2000) Environmental Science, Earth as a Living Planet, Wiley, London</p> <p>Currell, G. A. (2009). Essential Mathematics and Statistics for Science, John Wiley & Son.</p> <p>Holden, J.,(2005) An introduction to Physical Geography and the Environment, Prentice Hall.</p> <p>Park C. (2001) The Environment. Principles and Applications, 2nd Edition, Routledge, London</p> <p>Ramsden, E.N. (1996) Chemistry of the Environment, Stanley Thorns.</p> <p>Strahler, A. & Strahler, A. (2002) Physical Geography, Science & Systems of the Human Environment, Wiley.</p> <p>Strahler, A. H., (2006) Introducing Physical Geography, 4th Edition, Wiley.</p> <p>Wright, J. (2003) Environmental Chemistry, Routledge</p>

Part 3: Assessment	
Assessment Strategy	<p>A range of assessment techniques will be employed to ensure that learners can meet the breadth of learning outcomes presented in this module alongside the ability to demonstrate transferable skills e.g. communication skills.</p> <p>Workbook: A range of practical chemical techniques and investigations will be undertaken to explore underlying scientific principles. This will include chemical analysis and interpretation of data.</p> <p>Assessed Practical: One laboratory technique and data analysis exercise is assessed under examination conditions.</p> <p>Investigative Report: Students will investigate earth systems within their local area and present their findings in a report format to cover the key areas of lithosphere, hydrosphere, atmosphere and biosphere.</p> <p>Scientific Investigation Techniques Portfolio: A series of mathematical and data analysis techniques relevant to public and environmental health including statistical analysis. The approach to this assessment takes the form of weekly exercises undertaken by the student to build a portfolio of evidence.</p>

	Weekly submission is encouraged by allocation of marks as part of the assessment scheme.
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Identify final assessment component and element	Component B, element 1	
% weighting between components A and B (Standard modules only)	A:	B:
	40%	60%

First Sit	
Component A (controlled conditions) Description of each element	Element weighting (as % of component)
1. Scientific Investigation Techniques Portfolio	75%
2. Assessed Practical (1 hour)	25%
Component B Description of each element	Element weighting (as % of component)
1. Investigative Report (1500 words) FINAL ASSESSMENT	50%
2. Practical Techniques Portfolio	50%

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) Description of each element	Element weighting (as % of component)
3. Scientific Investigation Techniques Portfolio	75%
4. Assessed Practical (1 hour)	25%
Component B Description of each element	Element weighting (as % of component)
3. Investigative Report (1500 words) FINAL ASSESSMENT	50%
4. Practical Techniques Portfolio	50%

If a student is permitted an **EXCEPTIONAL RETAKE** of the module the assessment will be that indicated by the Module Description at the time that retake commences.