STUDENT AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Information			
Module Title	Environmental and Field Techniques		
Module Code	USSK5G-30-2	Level	Level 5
For implementation from	2020-21		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Health & Applied Sciences	Field	Applied Sciences
Department	HAS Dept of Applied Sciences		
Module type:	Standard		
Pre-requisites	Field Skills 2020-21		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
Overview: Pre-requisites: USSK5B-30-1 Field Skills or equivalent **Educational Aims:** This module allows students to develop practical skills in field research, field techniques and data analysis in addition to understanding the limitations of these approaches and being introduced to contemporary environmental technologies. **Outline Syllabus:** Experimental design, data analysis and interpretation : Principles of scientific methodology. Principles of experimental design. Review and critical assessment of research methodologies including both quantitative and qualitative approaches. Principles of temporal and spatial data and long-term monitoring. Presentation of scientific data using Excel and R. Graphical presentation. Data error bars. Examining and recognising trends and patterns in complex data. Design and analysis of questionnaires and case studies. Field techniques : Principles of ecological surveying techniques.

Techniques in surveying terrestrial and aquatic fauna and flora, habitat and conservation management assessment techniques, habitat suitability and evaluation procedures.
Biological monitoring - using organisms to monitor the environment, diversity indices, bioaccumulation, and indicator species.
Principles of Environmental Impact Assessment (EIA).
Techniques and approaches in undertaking EIA.
Introduction to remote sensing: Geographical Information Systems (GIS); LIDAR (Light Detection and Ranging); Ground penetrating radar.

Statistics analysis of data:
Analysis of environmental data from first principles.
Data transformations, descriptive statistics, t-tests, Chi-square, ANOVA, ANCOVA, multiple regression, ordination and classification techniques.
Use of R .

Further development of Graduate and Science Communication skills:
Transition to level 2, expectations, requirements and support.
Further development of study skills such as literature and information searching, scientific writing, referencing, use of word processing packages, using data bases, using feedback.
Self evaluation of skills and planning personal development.
Science communication, presentations, media platforms, web pages, use of social media, new communication technologies.
Careers and current developments in their chosen discipline.

IT skills sessions (described above) will cover topics comparable to the material covered in the European Computer Driving Licence - Level 2 (Extra) allowing students to gain this qualification. UWE is a test centre for ECDL and the Faculty TEL manager has confirmed that students on this programme will be accommodated.

Teaching and Learning Methods: The contact hours (66 hours) are distributed as follows:
Interactive lectures (3 hours/week, comprising tutorials, online computer practicals etc)
On campus lab practicals (2/hrs practical).

This is a module about developing skills and so a variety of teaching and learning approaches will be employed that includes field/laboratory work, computer practical tutorials and group research projects. Part of this module covers the further development of data analysis skills initiated at level one. Technology enhanced learning is therefore essential to support the teaching of these skills. The module will be delivered using a mixture of whole group (lectorials), small tutorial group sessions, workshops, and practical sessions. Students will be allocated to a Study Skills Tutor group where a member of staff will facilitate personal, group and peer assisted learning of key skills. This will encompass the university wide Personal Tutor scheme.

Support for student learning in data analysis will be given through regular lectorials/tutorials which will be integrated with the online self-assessment tests and online video support to ensure focussed help can be given to those students who need help in the particular areas. This re-enforces to students to the concept of using technology to enhance learning (TEL). Students will further develop IT and data analysis skills through the computer-based workshops. This will be re-enforced by the need of students to complete the European Computer Driving Licence (ECDL) Part 2. Resources for data analysis also include direct tutorial material, and references to published material, software, internet and intranet resources. Where possible, the statistical topics are presented and tested in the context of environmental issues.

The module includes group research projects. Students will work in teams to undertake a practical investigation. When appropriate, students will use facilitated online collaborative working approach (such as a wiki) to support this group working. The project and findings will be presented as a poster which is assessed on an individual basis. This is ideal underpinning for the Research Project at final year.

Student learning will be supported through the University's E-Learning Environment, Blackboard.

Scheduled learning includes lectorials, tutorials, workshops, laboratory practical classes, computer practical classes and a residential field course.

Independent learning includes hours engaged with essential reading, assignment preparation and completion. Students will be encouraged to use a facilitated online collaborative working approach (such as a wiki) to support the group project working. These sessions constitute an average time per level.

Part 3: Assessment

The Assessment Strategy has been designed to support and enhance the development of both subject-based and generic key skills, whilst ensuring that the module's Learning Outcomes are attained. The focus is on assessments that link directly to employability skills as described below.

The coursework comprises 2 elements. The first is a Field Report which will be based on practical field sessions . This report requires the detailed recording of a range of environmental variables whilst in the field, followed by analysis and interpretation of these data. This report includes critical review of the methodology used and discussion on how the environment is affected by natural and anthropogenic factors. The recording and analysis of field data a vital skill for environmental students. Furthermore, students need to know not just how to undertake a particular field survey but to be aware of the limitations and appropriateness of each method. Consequently this assessment addresses both these points and so can be described as an assessment for learning and employability.

The second element is a Skills Portfolio. This will be generated using an appropriate online technology where possible or other system supported by UWE. Students will be given instruction on the content of this portfolio which will contain examples of both study skills and subject skills such as: data analysis case study; statistical analysis of field data; interpretation and discussion of field data; case study on biotic indicators; report on EIA; report on remote sensing; ECDL level 2 certificate; design of questionnaire; design of webpage; a skills evaluation and gap analysis; reflection and action plan.

The controlled component is a Defended Poster. Students will work in groups to undertake a practical investigation but will then present their project individually as a poster that they defend. This assessment provides an opportunity for students to refine working in a group, time management, analysis of data and their presentation skills. The ability to present and discuss work is a highly sought after graduate skill.

Formative feedback is available to students throughout the module through group discussions particularly in tutor group sessions, during the practical sessions and during the field course. Students are provided with formative feed-forward for their poster presentation through a poster preparation session prior to the presentation and through support materials supplied through Blackboard.

First Sit Components	Final Assessment	Element weighting	Description
Set Exercise - Component A	✓	40 %	Poster presentation with defence
Report - Component B		20 %	Field report
Portfolio - Component B		40 %	Skills portfolio
Resit Components	Final Assessment	Element weighting	Description
Set Exercise - Component A	✓	40 %	Poster presentation with defence
Report - Component B		20 %	Field report
Portfolio - Component B		40 %	Skills portfolio

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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**	
	Discuss the sampling environmental systems and the critical selection of techniques in relation to specific objectives	MO1
	Design and undertake detailed environmental investigations drawing upon a diversity of environmental and field techniques	MO2
	Undertake statistical analysis of environmental data and be able to critically interpret and present these data	MO3
	Use resources that will support research, problem solving and study skills	MO4
	Communicate their work to others by a variety of methods, including written, oral, new media	MO5
Contact Hours	**Independent Study Hours:**	
	Independent study/self-guided study	234
	Total Independent Study Hours:	234
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	66
	Total Scheduled Learning and Teaching Hours:	66
	Hours to be allocated	300
	Allocated Hours	300
Reading List	*The reading list for this module can be accessed via the following link:* https://uwe.rl.talis.com/modules/ussk5g-30-2.html	

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Part 5: Contributes Towards
This module contributes towards the following programmes of study: Environmental Science {Foundation} [Sep][SW][Frenchay][5yrs] BSc (Hons) 2018-19 Environmental Science {Foundation} [Sep][FT][Frenchay][4yrs] BSc (Hons) 2018-19 Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Zoo][4yrs] BSc (Hons) 2018-19 Wildlife Ecology and Conservation Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19 Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19 Environmental Science {Foundation} [Sep][FT][Frenchay][5yrs] MSci 2018-19 Environmental Science {Foundation} [Sep][SW][Frenchay][6yrs] MSci 2018-19 Wildlife Ecology and Conservation Science {Foundation} [Sep][SW][Zoo][5yrs] BSc (Hons) 2018-19