



**CORPORATE AND ACADEMIC SERVICES**

**MODULE SPECIFICATION**

Part 1: Basic Data					
Module Title	Research Skills				
Module Code	USSKAP-30-2	Level	2	Version	1
Owning Faculty	Health and Applied Sciences (HAS)	Field	BBAS		
Contributes towards	BSc (Hons) Biological Science				
UWE Credit Rating	30	ECTS Credit Rating	15	Module Type	Standard
Pre-requisites	USSKA6-30-1 – Skills for Biosciences	Co- requisites	None		
Excluded Combinations	None	Module Entry requirements	N/A		
Valid From	September 2015	Valid to	September 2021		

<b>CAP Approval Date</b>	28/03/2014
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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"> <li>• Design appropriate experimental procedures to carry out work in a biological laboratory and as field work (Assessed in Component A and B)</li> <li>• Discussed issues of research governance, including Health and Safety, Ethics, Animal Welfare and use of genetically modified organisms (Assessed in Component A).</li> <li>• Determine which statistical analysis is needed to interpret the data and carry out appropriate analysis correctly (Assessed in Component A and B)</li> <li>• Carry out laboratory and /or field procedures safety to gather a useable set of data.</li> <li>• Disseminate the outcome of studies in a variety of ways to a range of audiences (Assessed in Component B).</li> <li>• Evaluate and critically discuss previously published research (Assessed in Component B).</li> </ul>
Syllabus Outline	<ul style="list-style-type: none"> <li>• Design appropriate experimental procedures to carry out work in a biological laboratory; The design of experiments will be discussed, including the choosing of methodologies, the use of controls, how to prepare materials and how to collect data. Expectation of the output of experiments will be discussed to</li> </ul>

	<p>show how the proposed use of statistical analysis should be used to inform the structure of the experimental design.</p> <ul style="list-style-type: none"> <li>• Discussed issues of research governance, including Health and Safety, Ethics, Animal Welfare and use of genetically modified organisms. Discussions will include how to carry out risk assessments for biological sciences work, both in the laboratory and in the field. The use of MSDS information and COSHH forms for risk assessment will be included. Discussions on ethics and the handling of human tissues will be included: this will cover potential work in laboratories as well as work using human participants, either through the collection of samples or the use of questionnaires.</li> <li>• Determine which statistical analysis is needed to interpret the data and carry out appropriate analysis correctly. Discussion will include explanation of different distribution patterns and the types of data set that may be generated, Following on from this, will be discussions on how to choose the most appropriate type of statistical analysis for an experiment. A variety of statistical analysis methods will be covered, including t-test and two-way and multi-way ANOVA.</li> <li>• Practical classes will enable students to set up experiments as discussed in previous session, collect appropriate data, analyses data appropriately and present the study to a wider audience.</li> <li>• Disseminate the outcome of studies in a variety of ways to a range of audiences. Dissemination in the form of reports, posters, press releases etc. will be discussed and student will be given the opportunity to plan such dissemination tools.</li> </ul>
Contact Hours	<p>The contact hours (72) are distributed as follows:</p> <ul style="list-style-type: none"> <li>• 33 hours lectures</li> <li>• 18 hours of practical classes/laboratory sessions</li> <li>• 18 hours of tutorial sessions</li> <li>• 3 hours of revision session</li> </ul>
Teaching and Learning Methods	<p>The module will be delivered as lectures and practical class sessions with a revisions session at the end of the module. Teaching will be underpinned by research from the department as well as from the wider literature. Students will get a rounded training in research methodologies which will help to make them ready-and-able graduates to enhance their future employment prospects.</p> <p><b>Scheduled learning</b></p> <ul style="list-style-type: none"> <li>• Scheduled contact time is structured around a series of lectures that introduce the key concepts of the topic under discussion.</li> <li>• Practical classes will enable students to carry out an extended experiment based on the concepts discussed in the lectures.</li> <li>• Tutorial sessions will discuss dissemination of data, in the form in a variety of forms.</li> <li>• Revision session will be based around writing targeted essay plans, towards the end of the module.</li> </ul> <p><b>Independent learning</b> includes hours engaged with essential reading, case study preparation, assignment preparation and completion etc. These sessions constitute an average time per level as indicated in the table below.</p> <p>The module will be supported by Blackboard.</p>
Key Information Sets Information	<p>Key Information Sets (KIS) are produced at programme level for all programmes that this module contributes to, which is a requirement set by HESA/HEFCE. KIS are comparable sets of standardised information about undergraduate courses allowing prospective students to compare and contrast between programmes they are</p>

interested in applying for.

Key Information Set - Module data				
Number of credits for this module				30
Hours to be allocated	Scheduled learning and teaching study hours	Independent study hours	Placement study hours	Allocated Hours
300	72	228	0	300

The table below indicates as a percentage the total assessment of the module which constitutes a -

**Written Exam:** Unseen written exam,

**Coursework:** Written assignment or essay, report, dissertation, portfolio, project

**Practical Exam:** Oral Assessment and/or presentation, practical skills assessment, practical exam

Please note that this is the total of various types of assessment and will not necessarily reflect the component and module weightings in the Assessment section of this module description:

Total assessment of the module:	
Written exam assessment percentage	50%
Coursework assessment percentage	50%
Practical exam assessment percentage	0%
	100%

**Reading Strategy**

All students will be encouraged to make full use of the print and electronic resources available to them through membership of the University. These include a range of electronic journals and a wide variety of resources available through web sites and information gateways. The University Library's web pages provide access to subject relevant resources and services, and to the library catalogue. Many resources can be accessed remotely. Students will be presented with opportunities within the curriculum to develop their information retrieval and evaluation skills in order to identify such resources effectively.

Any **essential reading** will be indicated clearly, along with the method for accessing it, e.g. students may be expected to purchase a set text, be given or sold a print study pack or be referred to texts that are available electronically, etc. This guidance will be available either in the module handbook, via the module information on Blackboard or through any other vehicle deemed appropriate by the module/programme leaders.

If **further reading** is expected, this will be indicated clearly. If specific texts are listed, a clear indication will be given regarding how to access them and, if

	appropriate, students will be given guidance on how to identify relevant sources for themselves, e.g. through use of bibliographical databases.
Indicative Reading List	<p><i>The following list is offered to provide validation panels/accrediting bodies with an indication of the type and level of information students may be expected to consult. As such, its currency may wane during the life span of the module specification. However, as indicated above, CURRENT advice on readings will be available via other more frequently updated mechanisms.</i></p> <p><u>Books:</u> The most recent edition of:</p> <ul style="list-style-type: none"> <li>• Jones, A. Reed, R., Weyers, J. <i>Practical Skills in Biology</i>. Harlow: Pearson Education</li> <li>• Lodish <i>et al.</i> <i>Molecular Cell Biology</i>. New York: W.H. Freeman.</li> <li>• Alberts <i>et al.</i> <i>Molecular Biology of the Cell</i>. Abingdon: Garland Publishing.</li> </ul> <p>• Plus appropriate use of relevant primary and review journals and www based resources. These will include;</p> <p>Trends in... series of journals  Current Opinion... series of journals  Frontiers in... series of journals  Nature  Nature Reviews  PLoS  Etc.</p>

### Part 3: Assessment

<b>Part 3: Assessment</b>	
Assessment Strategy	<p>The Assessment for this module is designed to test the breadth and depth of students' knowledge, as well as their ability to analyse, synthesize and summarise information critically, including published research and data from the 'grey' literature.</p> <p>The controlled component is a written exam. The exam will be 3 hours duration which is consistent with the Department's assessment strategy for Level 2 modules. This assessment allows students to demonstrate both their ability to research, prioritise information and produced a structured, evidence based answer. This assessment links directly to requests from employers as they require graduates proficient at researching and scientific writing under pressure. The examination provides students with the opportunity to demonstrate their knowledge and understanding of the key concepts and paradigms associated with the subject matter, to use case studies and other evidence critically to support their arguments.</p> <p>The written assignment provides the opportunity for the student to complete an in-depth analysis of selected topic from the module syllabus by critically reviewing published research as well as presenting their own data from the practical sessions. The second assignment will be a problem based data interpretation that allows the students to interpret data from a recently published paper and discuss the significance and</p>

	<p>relevance of the data presented.</p> <p>Opportunities for formative assessment and feedback are built into the assignments and review of past exam papers.</p> <p>All work is marked in line with the Department's Generic Assessment Criteria and conforms to the university policies for the setting, collection, marking and return of student work. Assessments are described in the Module handbook that is supplied at the start of module.</p>
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Identify final assessment component and element	<b>Component A (3 hour exam)</b>	
<b>% weighting between components A and B</b> (Standard modules only)	<b>A:</b>	<b>B:</b>
	<b>50%</b>	<b>50%</b>
<b>First Sit</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Examination (3 hours)	100%	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Written assignment	50%	
2. Problem-based data interpretation	50%	

<b>Resit (further attendance at taught classes is not required)</b>		
<b>Component A</b> (controlled conditions) <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Examination (3 hours)	100%	
<b>Component B</b> <b>Description of each element</b>	<b>Element weighting</b> <b>(as % of component)</b>	
1. Written assignment	50%	
2. Problem-based data interpretation	50%	
<p>If a student is permitted an <b>EXCEPTIONAL RETAKE</b> of the module the assessment will be that indicated by the Module Description at the time that retake commences.</p>		