University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Scientific Frontiers and Enterprise					
Module Code	USSKCF-15-3		Level	3	Version	1
Owning Faculty	Health & Applied Sciences		Field	Biological, Biomedical and Applied Sciences		
Contributes towards	BSc Environmental Science, Biological Sciences, Biomedical Science					
UWE Credit Rating	15	ECTS Credit Rating	7.5	Module Type	Project	
Pre-requisites	None		Co- requisites	none		
Excluded Combinations	none		Module Entry requirements	N/A		
Valid From	September 2014		Valid to	September 2020		

CAP Approval Date	28/03/2014

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: • demonstrate an understanding of research impact and a critical appreciation of the relationship between science and society and the economy; • discuss selected aspects of the scientific research process; • demonstrate an understanding of innovation and scientific entrepreneurship and research impact in the wider sense • critically evaluate the need for scientific commercialisation
Syllabus Outline	This module concentrates on the connection between science, innovation and business enterprise. The nature of the connection between science and business is changing fast. Interestingly, there has been a large decline in corporate industrial laboratories but an emergence of a new class of entrepreneurial firms that are deeply immersed in science sectors such as biotech, life sciences, nanotech and energy. Science-based businesses face unique challenges as they straddle two worlds with very different time horizons, risks and expectations.

<table>
<tr><td></td><td>Students will:

• Investigate scientific frontiers within a specified field (environmental sciences, biological sciences, biomedical sciences) (A&B)
• Engage from practicing researchers (A&B)
• Gain an understanding of the scientific research process and technology readiness levels (A&B)
• study the importance and meaning of discovery, innovation and enterprise in the sciences (A&B)
• Learn the push pull levers that drive business-led commercialisation of scientific ideas that impact on business, economy and society (A&B)</td></tr>
<tr><td>Contact Hours</td><td>The contact hours (36) are distributed as follows:
36 hours of research seminars and lectures.

In addition to the described contact time, this material will be supported through online learning material, including technology enhanced lecture material.

Independent learning: Using defined TEL strategies includes hours engaged with essential reading, data handling, presentations etc.</td></tr>
<tr><td>Teaching and Learning Methods</td><td>Material will be delivered mostly as lectures and research presentations which will reinforced by directed reading and tutorials. Tutorials and learning support will be offered at key times, as required. Blackboard will support the module, and will provide access to course documents and materials. There will be a focus on exploiting opportunities to use web-based support for learning.

Independent learning: In addition to lectures students are expected to engage in independent learning such as online journals and resources. The expected time given to this aspect is 114 hours.</td></tr>
<tr><td>Key Information Sets Information</td><td>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

<u>Key Information Set - Module data</u>

Number of credits for this module 15

<table>
<tr><th>Hours to be allocated</th><th>Scheduled learning and teaching study hours</th><th>Independent study hours</th><th>Placement study hours</th><th>Allocated Hours</th></tr>
<tr><td>150</td><td>36</td><td>114</td><td></td><td>150</td></tr>
</table>

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

Controlled: Written Exam
Coursework: Coursework Report; Practical Logbook and Report</td></tr>
</table>

	Total assessment of the module:
	Presentation (innovation pitch) 40%
	Contemporary Research Portfolio 60%
	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 research article or watch a research webinar. Guidance will be available via the module handbook and Blackboard, or through any other vehicle deemed appropriate by the module/programme leaders. **Further reading** is expected and this will be indicated clearly, in advance. 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. A detailed reading list will be made available through relevant channels, e.g. module handbooks, Blackboard, etc.
Indicative Reading List	

Part 3: Assessment	
Assessment Strategy	The Assessment Strategy has been designed to support and enhance the development of both subject-based and generic key skills and the appreciation of the commercialisation of science, entrepreneurship and innovation as indicated in the Learning Outcomes. The focus is on assessments that link directly to employability skills as described below. **Component A.** This will be assessed via a 15 minute presentation. The presentation will be used to assess the student's key knowledge and understanding of the commercialisation of science, entrepreneurship and innovation in a relevant scientific frontier. In addition this component will assess students' competence of pitching a scientific innovation within a commercially orientated space. **Component B** **Contemporaneous Research Portfolio** The portfolio will require students to attend at least 6 research/innovation seminars presented within the Faculty (e.g. CRIB research seminars) throughout the academic year. In the portfolio students will be required to provide a critique of the seminar in relation to its scientific discipline and summarise the main findings of the seminar. In addition students will be

	asked to provide a brief discussion of the economic and societal benefits of such research and illustrate any likely impact that may arise as well as some of the barriers that may reduce the impact of such research. An understanding of how the research process in relation to eventual research impact, economically and to society is a key skill that students need to develop if they are to be employed in the commercialisation of science, entrepreneurship and innovation. This assessment addresses these key skills.

Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	**A:** **40%**	**B**: **60%**
First Sit		
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**	
1. Presentation (Innovation Pitch)	100%	
Component B **Description of each element**	**Element weighting** **(as % of component)**	
1. Contemporaneous Research Portfolio	100%	

Resit (further attendance at taught classes is not required)	
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. Presentation (Innovation Pitch)	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Scientific Frontier Review	100%
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.	