University of the West of England
BRISTOL

CORPORATE AND ACADEMIC SERVICES

MODULE SPECIFICATION

Part 1: Basic Data						
Module Title	Applied Genetics					
Module Code	USSJ4Y-20-2		Level	2	Version	5
Owning Faculty	Health and Life Sciences		Field	Applied Sciences		
Contributes towards						
UWE Credit Rating	20	ECTS Credit Rating	10	Module Type	Standard	
Pre-requisites	USSJJN-20-2 Genetics and Evolution USSJRU-30-1 Human Biological Systems		Co- requisites	None		
Excluded Combinations	None		Module Entry requirements	N/A		
Valid From	September 2012		Valid to	September 2018		

CAP Approval Date	10/10/2012

Part 2: Learning and Teaching	
Learning Outcomes	On successful completion of this module students will be able to: • describe the range of current gene-based techniques used in genetic studies • discuss selected applications of current gene-based technology • appreciate the continuing development gene-based technology • explain the impact of gene–based technology on human society • have extended their practical experience of the use of gene-based techniques
Syllabus Outline	**Overview** Overview of applied genetics; revision of basic genetic concepts and terminology; manipulating the genome – recombinant DNA technology. **Genome Mapping** Human genome structure; DNA types; approaches to mapping genes – functional and positional cloning; comparing physical and genetic maps; interpreting sequence data; Using model genomes to afford an insight into functional genomics; legal and ethical issues. **Genotyping** DNA variation within organisms; detecting specific DNA variants within individual genomes; disease diagnosis; genetic screening; DNA profiling; ethical and legal issues. **Population genetics** Allele frequencies, genetic equilibria, population mixing, genetic drift and gene flow.

	Transgenic Organisms Creating transgenic organisms; using the technology to study gene function and regulation; GM crops; transgenic mouse models for human disease; introduction to gene therapy; legal and ethical issues. **Developmental genetics** Stem cells; cell type specification in animals; patterning during embryogenesis; Hox genes in drosophila and mammals; floral organ identity genes in Arabidopsis.
Teaching and Learning Methods	The module will be delivered as mix of lectures and integrated tutorial sessions – with computer-learning support together with a student centred case study and extended practical project.
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	• Lamb BC. The Applied Genetics of Plants, Animals, Humans and Fungi. • Russell, P.J. iGenetics. • Brown TA Genomes • Lodish, H, Berk, A, Zipursky, SL, Matsudaira, P, Baltimore, D and Darnell, J. Molecular Cell Biology.

Part 3: Assessment		
Identify final assessment component and element		
% weighting between components A and B (Standard modules only)	**A:** **50**	**B**: **50**
First Sit		
Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**	
1. 3 hour examination	100%	
Component B **Description of each element**	**Element weighting** **(as % of component)**	
1. Case Study	100%	
2. Practical Project	100%	

Resit (further attendance at taught classes is not required)

Component A (controlled conditions) **Description of each element**	**Element weighting** **(as % of component)**
1. 3 hour examination	100%
Component B **Description of each element**	**Element weighting** **(as % of component)**
1. Case Study	100%
2. Practical data analysis	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.	