STUDENT AND ACADEMIC SERVICES

UWE Bristol | University of the West of England

MODULE SPECIFICATION

Part 1: Information			
Module Title	Multivariate Statistical Modelling		
Module Code	UFMFW9-30-3	Level	Level 6
For implementation from	2019-20		
UWE Credit Rating	30	ECTS Credit Rating	15
Faculty	Faculty of Environment & Technology	Field	Engineering, Design and Mathematics
Department	FET Dept of Engin Design & Mathematics		
Module type:	Standard		
Pre-requisites	Statistical Modelling 2019-20		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
Educational Aims: This module is concerned with the application of modern statistical methods suitable for modelling complex data. There will be extensive use of statistical computer packages, including: Minitab, R and SPSS **Outline Syllabus:** Bayesian Statistics: Bayesian paradigm Conjugacy Computing Posterior Densities – exact and numerical methods Prior Elicitation including building robust priors Multivariate Statistics: Cluster Analysis, CHAID/CART Factor Analysis and Principal Components Analysis Structural Equation Modelling Correspondence Analysis Multidimensional Scaling Multivariate Multiple Regression Generalised Linear Models:

Introduction to the exponential family of distributions
Canonical form of the natural exponential family
Link functions
Associated model diagnostics, model fitting and model building

Teaching and Learning Methods: Scheduled teaching hours will take the form of lectures, workshops and computer practicals. The students will be directed to a programme of self study initiated by the lecture sessions and supported by the practicals/workshops.

Contact time 72 hours
Assimilation and development of knowledge 150 hours
Assessment 78 hours
TOTAL 300 HOURS

Part 3: Assessment

Component A consists of an examination which assesses students' understanding of concepts and techniques as well as their ability to interpret results within different contexts.

Component B consists of two assignments worth 25% each. The assessments will focus on the statistical modelling of data and the mathematical principles on which those techniques are based.

First Sit Components	Final Assessment	Element weighting	Description
Written Assignment - Component B		25 %	Coursework 1
Written Assignment - Component B		25 %	Coursework 2
Examination - Component A	✓	50 %	Written examination (3 hours)
Resit Components	**Final Assessment**	**Element weighting**	**Description**
Written Assignment - Component B		50 %	One coursework comparable with the coursework in the first assessment attempt.
Examination - Component A	✓	50 %	Written examination (3 hours)

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**
	Determine appropriate statistical techniques for given contexts and then apply these using modern day software	MO1
	Identify appropriate exploratory data analysis techniques and then combine appropriate modelling techniques for a variety of situations	MO2
	Assess model diagnostics to inform empirical model building	MO3
	Interpret and explain a wide variety of statistical models in different contexts to both expert and non-expert audiences	MO4
	Examine limitations of inference from statistical models based on model evaluation techniques	MO5
Contact Hours	**Independent Study Hours:**	
	Independent study/self-guided study	228
	Total Independent Study Hours:	228
	Scheduled Learning and Teaching Hours:	
	Face-to-face learning	72
	Total Scheduled Learning and Teaching Hours:	72
	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/ufmfw9-30-3.html	

Part 5: Contributes Towards
This module contributes towards the following programmes of study:

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