



MODULE SPECIFICATION

Part 1: Information			
Module Title	Multivariate Statistical Modelling		
Module Code	UFMF9-30-3	Level	Level 6
For implementation from	2018-19		
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		
Contributes towards			
Module type:	Standard		
Pre-requisites	Statistical Modelling 2018-19		
Excluded Combinations	None		
Co- requisites	None		
Module Entry requirements	None		

Part 2: Description
<p>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</p> <p>Outline Syllabus: Bayesian Statistics: Bayesian paradigm Conjugacy Computing Posterior Densities – exact and numerical methods Prior Elicitation including building robust priors</p> <p>Multivariate Statistics: Cluster Analysis, CHAID/CART Factor Analysis and Principal Components Analysis Structural Equation Modelling Correspondence Analysis Multidimensional Scaling</p>

STUDENT AND ACADEMIC SERVICES

<p>Multivariate Multiple Regression</p> <p>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</p> <p>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.</p> <p>Contact time 72 hours Assimilation and development of knowledge 150 hours Assessment 78 hours TOTAL 300 HOURS</p>
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Part 3: Assessment			
<p>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.</p> <p>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.</p>			
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	<p>On successful completion of this module students will be able to:</p> <table border="1"> <thead> <tr> <th></th> <th>Module Learning Outcomes</th> </tr> </thead> <tbody> <tr> <td>MO1</td> <td>Determine appropriate statistical techniques for given contexts and then apply these using modern day software</td> </tr> <tr> <td>MO2</td> <td>Identify appropriate exploratory data analysis techniques and then combine appropriate modelling techniques for a variety of situations</td> </tr> <tr> <td>MO3</td> <td>Assess model diagnostics to inform empirical model building</td> </tr> <tr> <td>MO4</td> <td>Interpret and explain a wide variety of statistical models in different contexts to both expert and non-expert audiences</td> </tr> </tbody> </table>		Module Learning Outcomes	MO1	Determine appropriate statistical techniques for given contexts and then apply these using modern day software	MO2	Identify appropriate exploratory data analysis techniques and then combine appropriate modelling techniques for a variety of situations	MO3	Assess model diagnostics to inform empirical model building	MO4	Interpret and explain a wide variety of statistical models in different contexts to both expert and non-expert audiences
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STUDENT AND ACADEMIC SERVICES

	MO5	Examine limitations of inference from statistical models based on model evaluation techniques
Contact Hours	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	<p><i>The reading list for this module can be accessed via the following link:</i></p> <p>https://uwe.rl.talis.com/modules/ufmfw9-30-3.html</p>	