UNIVERSITY of BRADFORD

Module Descriptor

Module Details	
Module Title	Data Analysis and Statistics
Module Code	BIC3011-A
Academic Year	2022/3
Credits	10
School	UoB International College
FHEQ Level	RQF Level 3

Contact Hours	
Type	Hours
Directed Study	50
Lectures	40
Laboratories	10

Availability	
Occurrence	Location / Period
BDA	University of Bradford / Semester 2
BDA	University of Bradford / Semester 3

Module Aims

This module aims to introduce students to basic statistical concepts, topics and methods. It will enable students to collate and present data in various accessible forms to analyse and interpret it effectively. The module will also enable them to evaluate the reliability, relevance and significance of data collected. Students will gain experience of using statistical packages and applying data in seeking solutions to problems in real-life contexts relevant to their chosen field of study. The module will cover topics relevant to the collection and use of data such as data protection legislation and ethical considerations.

Outline Syllabus

Summary Statistics - mean (geometric/harmonic), mode, median; tabulation and calculations by group for tabulation.
Introduction to Probability - interpretations; likelihood function.
Experimentation; the concept of Normal Distribution (Bell curve); sample size and the associated estimation of standard deviation, variance and standard error/confidence interval.
Estimation, correlation and regression.
Hypothesis testing using t or chi; use of P-value; calculation and interpretation of effect size.
Evaluation and interpretation of data in context; ethical considerations, including data protection legislation and protocols regarding data use and storage.
Presentation of data and its application to problem-solving in context.
Application of learning to consideration of a practical, real-life problem in the form of a case study.

Learning Outcomes

Outcome Number	Description
1	Demonstrate an understanding of statistical concepts, terms and methods, against an ethical and legal background.
2	Apply mathematical knowledge to the collation, evaluation and analysis of quantitative data.
3	Present mathematical data accessibly in a visual form using tables, pie charts, bar graphs, graphs, frequency distributions and histograms.
4	Interpret data and draw inferences relating to problems and issues requiring investigation.

Learning, Teaching and Assessment Strategy

Delivery is in small classes (max 18) with a strong focus on interactivity between staff and student and within the group. This interactivity involves pair and group work and is enhanced using an IWB or SmartBoard technology. Early in the term, several short-term assignments will be set so that students may have a high level of formative feedback. The formative feedback will help students receive targeted additional support.
During the first half of the term, the focus of learning and teaching is on the statistical content of the module with a focus on instruction and support for students in tacking examples undertaken in class and as assignments outside class. Students will also be made aware of the ethical and legal background to collection, collation, use and storage of data.

During the second half of the term with the focus of learning and teaching moving to consideration of other forms of data collection and analysis. The tutor will provide an introduction to the work to be undertaken and some instruction/demonstration drawn from practical, real-world examples before students begin to work singly, in pairs or groups on a problem posed by a case study, response to which completes the summative assessment for the module.
During the first half of the module's delivery, students engage in self or peer-assessed formative assessment activities, supported by their tutor, to develop their data-handling skills. The outcomes of which will be used to compile a portfolio for tutor assessment which will contribute to the final mark for the module. During the second half of the module, students undertake a case study assessment using proformas which provides them with a practical problem and access to sufficient data to respond to the problem and suggest a viable and sustainable solution. This tests their ability to deploy a basic data analysis strategy and demonstrate data handling and interpretative skills.

Mode of Assessment			
Type	Method	Description	Weighting
Summative	Coursework - Written	Report of statistical tasks completed individually	40%
Summative	Coursework - Written	Response to a case study requiring work in groups on a problem drawn from a real-life context (1500 words)	60%

Reading List
To access the reading list for this module, please visit https://bradford.rl.talis.com/index.html

Please note:
This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.

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