WM9K9-15 Problem Solving with Statistics

26/27

Department
WMG
Level
Taught Postgraduate Level
Module leader
Negar Riazifar
Credit value
15
Module duration
4 weeks
Assessment
Multiple
Study locations
University of Warwick main campus, Coventry Primary
Distance or Online Delivery

Description

Introductory description

As the business management landscape undergoes constant evolution, the utilisation of advanced statistical tools proves instrumental in facilitating progress from foundational enhancements to achieving excellence. This module covers statistical methods essential for effective data modelling. It describes the application of statistical techniques for comprehensive data analysis and interpretation. Additionally, it explores some of the tools for investigating processes, aiming either to solve specific problems or to gain insights that can shape future development and enhancement strategies.

This module describes the general context in which statistical techniques are appropriate, and when they are not. It indicates the basis of statistics as a means of modelling the system under consideration, and describes some of the tools for investigating processes, either to solve specific problems or to gain insights to support future development and improvement.

Module aims

This module aims to equip students with advanced statistical knowledge and skills to analyse,

model, and solve problems in diverse real-life systems, in particular business scenarios. By developing proficiency in creating and applying statistical models effectively in problem-solving and decision-making contexts, students gain a profound understanding of the applicability of statistical techniques to different problems. The module aims to expand basic tools, enabling students to navigate complexities within data analytics.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

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- Statistical models and "real world" systems.
- Statistical Distributions (Continuous and Discrete).
- Exploratory Data Analysis.
- Sampling and Inference.
- Analysis of Variance (ANOVA).
- Regression (linear and non-linear) and Correlation.
- Time-series Analysis.

Learning outcomes

By the end of the module, students should be able to:

- Collaboratively apply statistical tools and methods tailored to specific scenarios, address challenges and provide insightful recommendations for decision making.
- Evaluate the assumptions and assess the appropriateness of different statistical models for diverse scenarios.
- Apply advanced statistical tools and techniques to solve problems in real-world systems.
- Critically interpret the quantitative data analysis results, present them in a meaningful way for decision making and provide practical recommendations.
- Demonstrate advanced practical skills in implementing statistical analyses using applicable software packages and illustrate the outcomes through clear visualizations.

Indicative reading list

Reading lists can be found in Talis

Specific reading list for the module

International

Topics are of high international demand

Subject specific skills

Students are expected to gain/improve on the following:

- Data management and statistical analysis.
- Clear mathematical communication.
- Advanced quantitative reasoning.
- Statistical modelling.
- Use of software to support decision making.

Transferable skills

Problem-solving; critical thinking; communication; Teamwork;

Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (22%)
Seminars	10 sessions of 1 hour (11%)
Online learning (independent)	60 sessions of 1 hour (67%)
Total	90 hours

Private study description

No private study requirements defined for this module.

Costs

No further costs have been identified for this module.

Assessment

You must pass all assessment components to pass the module.

Assessment group A3

	Weighting	Study time	Eligible for self-certification
Group Assessment	30%	18 hours	No
Group presentation of visualisation and analysis of case study data. Peer Marking Process will be adopted in this assessment.			
Assignment	70%	42 hours	Yes (extension)

	Weighting	Study time	Eligible for self-certification

Discussion and analysis based on a given project. The statistical report in essay format includes equations, formulas, figures, tables, and screenshots to present the obtained results.

Assessment group R3

	Weighting	Study time	Eligible for self-certification
Individual Presentation	30%		No

Presentation of visualisation and analysis of case study data and a reflection of group work. This presentation will be recorded and submitted.

Assignment	70%	42 hours	No

Feedback on assessment

Written feedback for Group Assessment and Individual Presentation. Written feedback for Assignment.

Availability

Pre-requisites

There is currently no information about the courses for which this module is core or optional.