MATH09001 2021
Data Handling and Analysis

Module Description

To equip learners with the analytical tools required to design and analyse experiments and/or observational studies, in order to make estimates, test hypotheses and explore relationships.

Learning Outcomes

On completion of this module the learner will/should be able to:

1.	Collect quantitative and/or qualitative data using appropriate investigative techniques.
2.	Formulate research hypotheses
3.	Articulate a model for the response in an experiment
4.	Analyse data using software
5.	Present, defend and discuss conclusions
6.	Evaluate the statistical quality of research papers and presentations

Indicative Syllabus

Data Collection: types of data (quantitative/qualitative)

Data structuring and Analysis: assess reliability of qualitative data, statistical software packages (SPSS, Nvivo, minitab), variation between techniques, categorical data, contingency tables, Testing Hypotheses

Experiment design: single factor/multifactor experiments, experimental designs, sample size requirements, equivalence

Dissemination and Quality: Present, defend and discuss conclusions; statistical quality of research papers and presentations

Assessment Strategy

Learning outcomes will be assessed by means of project work carried out by the learners. The projects will involve the design of observational studies or experiments, data collection, data analysis, and presentation of conclusions. Project reports will be presented in written form and will also be presented and defended orally.

Non ISBN Literary Resources

Bryman, A. (1988). Quantity and Quality in Social Research. London: Unwin Hyman.

Clarke, A. (2000). Evaluation Research: An Introduction to Principles, Methods and Practice. London: Sage. Cohen, L., L. Manion and K. Morrison. (2001). Research Methods in Education. London: Routledge Falmer.

Cook, T. and C. Reichardt. (1979). Qualitative and Quantitative Methods in Evaluation Research. Beverly Hills, CA: Sage.

Fielding, N.G. and J. L. Fielding. (1986). Linking Data, Qualitative Methods Series. Beverly Hills, CA: Sage.

Gronlund, N. (1991). How to write and use instructional objectives, 4th edition. New York: Macmillan Publishing Company.

Howitt, D. and D. Cramer. (2005). A Guide to Computing Statistics with SPSS for Windows. Pearson Education Ltd.

Jick, T.D. (1983). 'Mixing qualitative and quantitative methods:triangulaton in action'. In:

Qualitative Methodology. Beverly Hills, CA: Sage.

Landor, Lauchlan, Carrigan and Kennedy. (2006). 'Feeding Back the Results of Dynamic Assessment to the Child Verbally and Through the Medium of Video' available at:
http://www.qsrinternational.com/FileResourceHandler.ashx/RelatedDocuments/DocumentFile/165/Feeding_back_the_results_of_dynamic_assessment_to_the_child.pdf

Leedy, P. and J. Ormrod. (2000). Practical Research: Planning and Design, 7th edition. Merrill Prentice Hall.

Silverman, D. (2000). Doing Qualitative Research: A Practical Handbook. London: Sage.