

Summary Information

Module Code	5123COMP
Formal Module Title	Statistical Modelling
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 5
Grading Schema	40

Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

Learning Methods

Learning Method Type	Hours
Lecture	22
Practical	33

Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
SEP-CTY	CTY	September	12 Weeks

Aims and Outcomes

Aims	To develop a theoretical knowledge of statistical skills to solve data science problems To develop and display solutions to data science problems by applying statistical theory using appropriate software applications
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After completing the module the student should be able to:

Learning Outcomes

Code	Number	Description
MLO1	1	Applying appropriate statistical theory data science problem to derive meaningful solutions.
MLO2	2	Apply appropriate statistical theory and derive meaningful solutions in a suitable programming language

Module Content

Outline Syllabus	Review summary statisticsAssumption testing for statistical testNormalityMultivariate normalityHomoscedasticityetcCorrelation and CovarianceNon-parametric test – Chi SquareT-TestsOne sample T-testTwo sample T-testPaired Two-sample T-TestANOVALinear ModelsSimple Linear RegressionMultiple RegressionDiscussion of Generalized Linear ModelsLogistic RegressionPoisson RegressionModel DiagnosticsResiduals – ANOVA – Akaike Information Criteria (AIC)Cross-ValidationBootstrapNonlinear ModelsNonlinear Least SquaresGeneralized Additive ModelsDecision treesRandom Forests (Ensemble)
Module Overview	
Additional Information	Although an apparently heavy theoretical treatment of the area, this is intended to be a practical, hands-on exploration of the area.

Assessments

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Report	Case Study Analysis	60	0	MLO2
Centralised Exam	Examination	40	1.5	MLO1

Module Contacts

Module Leader

Contact Name	Applies to all offerings	Offerings
Mark Taylor	Yes	N/A

Partner Module Team

Contact Name	Applies to all offerings	Offerings
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