

## Modelling 2

### Module Information

2022.01, Approved

#### Summary Information

Module Code	4113MATHS
Formal Module Title	Modelling 2
Owning School	Computer Science and Mathematics
Career	Undergraduate
Credits	20
Academic level	FHEQ Level 4
Grading Schema	40

#### Teaching Responsibility

LJMU Schools involved in Delivery
Computer Science and Mathematics

#### Learning Methods

Learning Method Type	Hours
Lecture	22
Tutorial	5
Workshop	33

#### Module Offering(s)

Display Name	Location	Start Month	Duration Number Duration Unit
JAN-CTY	CTY	January	12 Weeks

#### Aims and Outcomes

Aims	To introduce the student to mathematical modelling and analytical reasoning linked to real-world applications. To introduce students to algorithms for, and practical applications of linear algebra.
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**After completing the module the student should be able to:**

**Learning Outcomes**

Code	Number	Description
MLO1	1	Understand the importance of interpreting problems in mathematical form.
MLO2	2	Model sports data using regression methods and present as a group.
MLO3	3	Apply linear algebra techniques and algorithms in real-world problem solving.

**Module Content**

Outline Syllabus	Mathematical Methods for Modelling. Review of least squares regression and application to performance data. Numerical algorithms in linear algebra, e.g. methods for evaluating eigenvalues. Applications of matrices in statistics. Other application areas, such as Page Rank algorithm.
Module Overview	The aim of this module is to introduce you to mathematical modelling and analytical reasoning linked to real-world applications and introduce you to algorithms for, and practical applications of linear algebra.
Additional Information	This is an integrative module to give students proficiency and confidence in the use of fundamental mathematical tools. The first part gives confidence and experience in presenting statistical data. It then covers the application of matrices, eigenvalues and eigenvectors, not only as important concepts, but also as the kernel for many applications. The module sets the foundation for relating defined mathematical tools to areas of mathematical sciences and therefore has a focus on problem solving using theoretical material covered in more detail in other modules.

**Assessments**

Assignment Category	Assessment Name	Weight	Exam/Test Length (hours)	Module Learning Outcome Mapping
Presentation	Online tests and questions	50	0	MLO1
Report	Sports data and MAPLE TA	50	0	MLO2, MLO3

**Module Contacts**

**Module Leader**

Contact Name	Applies to all offerings	Offerings
Ian Malabar	Yes	N/A

**Partner Module Team**

Contact Name	Applies to all offerings	Offerings
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