

## Liverpool John Moores University

Title: Research Methods  
Status: Definitive  
Code: **7020MSC** (126853)  
Version Start Date: 01-08-2021

Owning School/Faculty: Engineering  
Teaching School/Faculty: Engineering

Team	Leader
Robyn Pyne	Y
Chia-Hsun Chang	
David Allanson	

**Academic Level:** FHEQ7      **Credit Value:** 10      **Total Delivered Hours:** 18  
**Total Learning Hours:** 100      **Private Study:** 82

### Delivery Options

Course typically offered: Semester 2

Component	Contact Hours
Lecture	6
Online	6
Tutorial	6

**Grading Basis:** 50 %

### Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Test	VLE	A portfolio of CANVAS test questions	40	
Report	Report	This report allows the student to develop a plan for their MSc project.	60	

### Aims

*The aims of this module are to develop the students' ability to formulate a coherent and well- designed research project and associated proposal. The module also aims*

*to develop the skills required to critically analyse and evaluate research findings and the effective presentation of the results.*

## **Learning Outcomes**

After completing the module the student should be able to:

- 1 Critically review/analyse and reflect on the work of other practitioners/researchers
- 2 Formulate research questions or hypothesis and develop a research plan.
- 3 Extract results from sources such as industrial data/surveys/empirical work/computer based models and undertake critical evaluation using appropriate statistical analysis techniques and appropriate significance tests
- 4 Synthesise a fully developed research proposal according to appropriate conventions containing introduction, literature review and evaluation of previous work and a project plan

## **Learning Outcomes of Assessments**

The assessment item list is assessed via the learning outcomes listed:

Portfolio of VLE tests	3				
Literature Review and Research	1	2	3	4	

## **Outline Syllabus**

*Introduction to search methods for literature*

*Development of a research question or hypothesis*

*Styles and conventions associated with technical writing, presentations and speaking to technical audiences including the presentation of technical results relevant to the subject discipline*

*Strategies for the design of experimental or other investigations, including statistical considerations so as to ensure the significance of the findings through application of the most appropriate statistical tests and software tools*

*Data handling using suitable software tools, qualitative and quantitative analysis of results using appropriate robust scientific methods*

*Management of project risk and uncertainty*

*Research ethics, data protection, health and safety considerations and responsibilities others*

*Development of critical analysis skills, robust formulation of dependable conclusions resulting in the need for recommendations for further work*

## **Learning Activities**

This is a unique module in that it draws on a blended learning approach to scaffold students in demonstrating the desired module outcomes. The module will be supported by online lectures, regular lectures and supporting tutorials/seminars, specific to the student's subject discipline. A major output of the module will be the

creation of a MSc project proposal that includes a clear statement of the aims and objectives, a literature review, initial research planning, sources of data and indicative methods by which the resulting data will be evaluated both critically and robustly. Practical tutorials will explore the use of software tools such as SPSS, NVIVO and WITNESS to undertake structured qualitative and/or statistical evaluation of quantitative data sets.

## **Notes**

The module is very important as it sets the groundwork for the completion of the MSc Project. The module provides grounding in the skills required to formulate a project question or hypothesis and the development of credible project plan for the resulting investigation(s). The module will explore techniques for the design of interviews/surveys/empirical work/computer simulation and visualisation/design testing and provide underpinning knowledge to aid the selection of the most appropriate statistical methods and data analysis tools. Tools for considering and mitigating against risk and uncertainties will also be explored. An important part of the module will look at the statistical treatment of project results, their critical evaluation, questioning validation and reliability.