Liverpool John Moores University

Title:	RESEARCH METHODS
Status:	Definitive
Code:	**7007NATSCI** (120790)
Version Start Date:	01-08-2015
Owning School/Faculty:	Natural Sciences & Psychology
Teaching School/Faculty:	Natural Sciences & Psychology

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Academic Level:	FHEQ7	**Credit Value:**	20.00	**Total Delivered Hours:**	40.00
Total Learning Hours:	200	**Private Study:**	160		

Delivery Options
Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	20.000
Online	8.000
Workshop	12.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Portfolio	grant	The assessment will be the preparation of a full grant application, including budget, impact and dissemination, for their dissertation research project in the format required by a funding body relevant to their	100.0	

Category	Short Description	Description	Weighting (%)	Exam Duration
		research area.		

Aims

The aim of this module is to provide extensive training in generic research knowledge and statistical techniques for the Natural Sciences as part of the preparation for the MSc dissertation.

Learning Outcomes

After completing the module the student should be able to:

1 Demonstrate the ability to design a research grant proposal around a research question: logistics, funding, timetabling, ethics, background.
2 Identify and discuss the impact of their study – both academically and non-academically.
3 Determine appropriate analytical methods for their project, including data collection.
4 Present ideas in written format suitable for scientific communications by placing the research project into the broader context of the field, including logistics, dissemination and budget.

Learning Outcomes of Assessments

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

Full grant application. 1 2 3 4

Outline Syllabus

1) The scientific method: Inquiry, parsimony. Observation, problem, hypothesis, methods, results, conclusion, communication.
2) Project logistics. Sample, funding, remaining flexible, timeline, ethics,
3) Ethics, data protection and intellectual property. Managing research data.
4) Library Databases research, Endnote.
5) Presenting posters and presentations – the good and the bad. Publishing – where? Impact factor, quartiles, citation index, R index. Where should I present and why? Authorship order and acknowledgements. How to prepare a manuscript.
6) Communicating your work outside academia: Creating website, blog, podcast. Use of social media. Use of media.
7) Developing a research question. Developing ideas. Open and close ended questions. Bias. Read articles and narrow it down. Brainstorming. Feasibility.
8) Grant applications (assessment). Includes: measuring impact.
9) CV writing, applying for jobs. Making yourself employable.
10) Statistics. Manipulating data. Arrays. Data collection. Workbook to go through

exercises at own pace. Intro to other packages (R, etc.)

Learning Activities

The contents will be delivered through a combination of lectures, workshops and online sessions by experts in different fields. The assessment will be the preparation of a full grant application, including budget, impact and dissemination, for their research project.

Notes

The aim of this module is to provide extensive training in generic research knowledge and statistical techniques for the Natural Sciences. It will provide the student with a broad appreciation of research methods and methodology including an understanding of the uses and limitations of different research methods. It will teach the students how to design and execute a research project keeping in mind feasibility, ethics, data protection, and project logistics and funding. In addition, attention will be given to dissemination to both academic and non-academic audiences: from writing academic manuscripts to creating blogs and speaking to the media. Univariate and multivariate statistics will be taught by lectures and online exercises, and students will be introduced to statistical software packages such as SPSS and R.