

Liverpool John Moores University

Title: SCIENTIFIC PROJECT MANAGEMENT AND ANALYSIS
Status: Definitive
Code: **5000NATSCI** (112577)
Version Start Date: 01-08-2011

Owning School/Faculty: Natural Sciences & Psychology
Teaching School/Faculty: Natural Sciences & Psychology

Team	Leader
Siobhan Power	Y
Emily Bethell	
James Ohman	
Richard Brown	
Richard Small	

Academic Level: FHEQ5 **Credit Value:** 24.00 **Total Delivered Hours:** 60.00
Total Learning Hours: 240 **Private Study:** 180

Delivery Options

Course typically offered: Standard Year Long

Component	Contact Hours
Lecture	18.000
Practical	10.000
Tutorial	8.000
Workshop	24.000

Grading Basis: 40 %

Assessment Details

Category	Short Description	Description	Weighting (%)	Exam Duration
Essay	Essay	Timed Essay	20.0	
Portfolio	Practicals	Analysis practicals	40.0	
Presentation	Presentati	Group presentation	25.0	
Reflection	CV	CV etc.	15.0	

Aims

To widen knowledge and experience of the statistical analysis of data. To provide a comprehensive, programme area specific, introduction to all aspects of managing field/laboratory projects and their associated skills.

Learning Outcomes

After completing the module the student should be able to:

- 1 Determine and apply the appropriate experimental design to a given experiment or survey.
- 2 Demonstrate a comprehensive range of employment skills related to the design, preparation and management of research projects.
- 3 Demonstrate a thorough understanding of time, budget and human resource constraints when managing field/laboratory projects.
- 4 Identify, apply and interpret appropriate statistical analyses.

Learning Outcomes of Assessments

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

Timed Essay	1
Analysis practicals	4
Group presentation	3
CV etc.	2

Outline Syllabus

Project management: time, budget and people management. Preparation of research proposals. Milestone plans. Health and safety. Risk assessment. Meetings and record keeping (agendas, minutes, etc.). Job advertisement preparation, short-listing & interviews. Oral advocacy. Employability and graduate skills. Data Analysis: Practical aspects of data analysis; transformation of data to meet assumptions. Modelling biological processes with the Poisson distribution. Testing hypotheses with the Binomial distribution. Principles of experimental design; completely randomised, randomised block & Latin square designs. One and two way analysis of variance and associated post-hoc tests e.g. Tukey test. Non-parametric equivalents of ANOVA, e.g. Kruskal Wallis, Scheirer-Ray-Hare. Testing for associations using correlation. Modelling linear relationships using simple and multiple regression.

Learning Activities

The module is delivered through lectures, workshops, tutorials, seminars, group meetings and directed study. Project management work comprises a substantial element of group work and integrates elements of simulated workplace activities and

the use of employer/occupationally driven case studies. A strong emphasis is put on self-directed study (including a large component of group work) and the development of graduate skills for employability. The module extends knowledge of statistical techniques suitable for the analysis of data from field and laboratory practicals and projects using the statistical package SPSS.

References

Course Material	Book
Author	Dytham, C.
Publishing Year	2002
Title	Choosing and using statistics: a biologist's guide.
Subtitle	
Edition	2nd.
Publisher	Blackwell
ISBN	1405102438

Course Material	Book
Author	Holmes, D., Moody, P. and Dine, D.
Publishing Year	2006
Title	Research methods in the biosciences.
Subtitle	
Edition	
Publisher	Oxford University Press.
ISBN	0199276929

Course Material	Book
Author	Ruxton, G.D. and Colegreave, N.
Publishing Year	2003
Title	Experimental design for the life sciences.
Subtitle	
Edition	
Publisher	Oxford University Press.
ISBN	0199252327

Notes

This module considers all aspects of managing field/laboratory projects, from project design and risk assessment through costings and resources management to the final interviewing of prospective candidates for employment. Data analysis skills are developed using biological examples. Principles of experimental design are discussed as preparation for final year Honours Projects and other practical work undertaken by biologists.