**BL6024 Quantitative Skills for Biologists using R**

**Credit Weighting:** 10  
  
**Semester(s):** Semester 2.  
  
**No. of Students:** Min 5 Max 40.  
  
**Pre-requisite(s):** ST4001 or equivalent  
  
**Co-requisite(s):** None.  
  
**Teaching Method(s):** 10 x 4hr(s) Workshops.  
  
**Module Co-ordinators:** Dr Javier delBarco-Trillo, School of BEES; Dr. Thomas Reed, School of BEES.  
  
**Lecturer(s):** Dr Javier delBarco-Trillo, School of BEES; Dr. Thomas Reed, School of BEES; Staff, School of BEES.

**Module Objective:** To provide quantitative skills required by postgraduate students to successfully conduct and publish their research, with a focus on data analysis and graphing, statistics, and basic modelling, as generally implemented by zoologists and ecologists.

**Module Content:** Topics include: Introduction to R and R Studio; data exploration and visualisation; interpretation of hypothesis tests; implementation in R of the main types of tests used by biologists, including t-test, ANOVA, correlations, linear regression, and principal component analysis; implementation and interpretation of GLMs and GLMMs; model simplification and selection; reporting results; introduction to mathematical modelling.

**Learning Outcomes:** On successful completion of this module, students should be able to:

* Load data into R and be able to run typical statistical tests in R
* Visualise data in R and create professional figures for publication purposes
* Implement and interpret statistical models
* Locate information to implement more complex analyses as required by the specific nature of their research questions
* Write results for publication of research
* program simple mathematical models using functions

**Assessment**: Total Marks 200: Continuous Assessment 200 marks (Four in-class practical exercises, 20 marks each; Final Written Report of several data analyses, 120 marks).

**Compulsory Elements:** Continuous Assessment.

**Penalties (for late submission of Course/Project Work etc.)**: Where work is submitted up to and including 7 days late, 10% of the total marks available shall be deducted from the mark achieved. Where work is submitted up to and including 14 days late, 20% of the total marks available shall be deducted from the mark achieved. Work submitted 15 days late or more shall be assigned a mark of zero.

**Pass Standard and any Special Requirements for Passing Module**: 40%.

**Formal Written Examination**: No Formal Written Examination.

**Requirements for Supplemental Examination**: No Supplemental Examination.