

Institution:	University of Sunderland
Programmes:	BSc Biological Sciences BSc Environmental Biology
Module:	Coastal Marine Ecology
Activity:	Producing a research proposal, paper and presentation
Level/Year:	3
Learning hours:	100

Work-related learning outcome(s)

By the end of this module the student will have gained experience in all the stages of managing and executing an independent marine field study, from the initial formulation of the idea for the study and application for funds, right through to formulating and communicating the results, both orally and in a written scientific paper.

Description of the teaching activity which achieves the learning outcome(s)

This module simulates a real research project based on a five-day residential field trip to a working marine station where typical laboratory materials are available.

Working in groups of three, students are asked to imagine that they are University academic staff collaborating on a research project. They first generate a scientific hypothesis that can be tested within the five-day trip, and then complete a standard NERC grant application form to apply for funds. (To give students real-world experience, they complete the form as if the project will take three years rather than the remainder of the module. This is the only point where the simulation is not wholly integrated.) The NERC form requires students to cost and justify all expenditure (e.g. salary, NI, overheads, increments).

Students manage their own time and can modify plans in order to carry out their project, provided that the co-ordinating member of staff signs off their plan and checks for Health and Safety issues. Students can use a variety of field sites and travel independently between them by bicycle.

The field trip concludes with an oral conference presentation by students to their peers, in which they describe the analysis and interpretation of their data. This also allows for mistakes to be addressed before assessment. Finally, each student independently produces the research 'paper' from the study, which must be structured as a scientific paper, leading from hypothesis to conclusion, and must be self-critical.

The co-ordinating member of staff acts as a facilitator throughout the project, guiding students and offering advice as a 'critical friend'.

Rationale for the selection of the teaching activity

This module exposes students to the realities of being a scientist. It gives them a real problem to tackle, with various components that last throughout the module. It is an enjoyable way to learn, and counters any impression they may have that academic study lacks application.

The module also develops key skills that will be valuable for students in a wide range of future careers. Executing one's own designs is particularly important in helping students to evaluate their own abilities and potential.

Assessment – approach and detail

Management and planning is assessed through the grant proposal (20%): each student in a group is awarded the same mark based on the feasibility and academic rigour of the study. In feedback students are also informed of the rating recommended by the reviewer to the Research Council. For example, despite being awarded a high mark in module assessment, the grant proposal may be rated as 'reject' because students wrote more than the four pages stipulated in describing their proposal, or asked for inadequate support, or failed to justify major expenditure. This helps to induce real-world values. The science is assessed through the individual report (80%).

Contact details

Mark Davies
Ecology Centre
University of Sunderland
Sunderland
SR1 3SD

Tel: UK + 191 515 2517
Fax UK + 191 515 2603

email: mark.davies@sunderland.ac.uk