

## Modes of assessing a Student's performance in statistical subjects – A brief look at the pro's and con's

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The role of assessment tasks in statistics subjects plays a very important role in determining the level of understanding of the material being taught. There are many options that are available to the teacher, all of which are either beneficial or counterproductive for the students understanding of statistics. This poster will explore some of these options, and in particular, its use in first year service teaching units which is how most students learn of statistics.

## Design of an enquiry-based 'Practical Only' course for the teaching of basis skills in first year Biology

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First year Biology teaching at the Callaghan Campus of the University of Newcastle has undergone a significant reorganisation in 2006. The rearrangement was conducted with the aims of increasing flexible delivery, improving student learning, reducing overall teaching effort, targeting teaching effort to biology majors and standardising course delivery throughout the university campuses. Key to the reorganisation has been the separation of the practical and lecture components of first year into distinctly separate courses. The practical course runs only in semester 2 and is compulsory for students that intend to graduate with a major in biology. Students that do not intend to continue their biology studies past 1st year are not required nor expected to enrol in the course.

Separation of the courses has allowed a renewed focus on basis skills including laboratory and field techniques, the scientific method and practice, report writing and personal interaction. In this paper we present the design of this practical course and explain the process and logic we have used in its construction. Skill acquisition is situated in authentic learning contexts, employing the University campus as a unifying theme. Through an enquiry-based approach, students learn how to think as scientists, posing and testing questions rather than 'doing the experiment'. The process of building and reinforcing skills (scaffolded learning) and the use of assessment & peer interaction to facilitate the learning process is discussed.

## Creativity in mathematics assessment

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It is often said that to be a good mathematician you need to be creative. However this is not always shown in the assessment of first year Mathematics. So what does happen when encourage students to be creative in an assessment task?

In many undergraduate mathematics courses most types of assessment is designed to see if the students understand what has been covered in lectures. Timed examinations and difficult assignments are the mainstay of assessment. This makes Mathematics assessment seem to be a hard slog. Indeed attempts to change this are met with resistance from students who do not believe that you can learn mathematics in other ways.

This paper describes an innovative assessment task where students get to show their creative side. This is done by asking students to design objects in three dimensions with the aid of *Mathematica*. They have the options of using Cartesian, cylindrical and spherical coordinate systems as well as defining curves and surfaces parametrically. The object in the assignment changes each year but the task remains the same.