

Post Graduate Certificate in HE Pre-Observation Planning Form

Lecturer's name Peter Rowlett      Observer's name Sharon Hutchings

Date 24/04/08      Venue ERD274

Module Scientific Mathematics

Number of learners 5      Time of observation 3pm-5pm

Main teaching method Problem class

A completed copy of this form should be given (or sent electronically) to your observer for discussion at the pre-observation meeting.

Aims of the session

Integration as anti-differentiation

In recent weeks the students have learned differentiation. This week provides an introduction to integration by setting it as the reverse process to differentiation.

By the end of the session the students should be able to integrate the types of functions encountered during differentiation by deduction of the reverse process. They should also have an understanding of the reason for a constant of integration and remember to include one.

Hopefully (though not essentially) they will have some appreciation of what integration hopes to achieve, in terms of summing infinite series, etc.

The students should go away able to correctly apply the technique of indefinite integration of some standard functions. They should also have some sense of what integration means.

Learners

Students are forensic science, business and astronomy students who have been judged by their home school to not have sufficient mathematics at A-Level. In reality most have A-Level maths and do not attend. Those that do attend are usually keen to learn and intelligent but often do not attend consistently. I have taught these students at 9 previous sessions on mathematics and this is the first lecture after the coursework submission deadline.

Teaching methods rationale: appropriateness to the required aims and learning outcomes, learner needs, subject content, resource availability and equal opportunities

Integration is a difficult concept and an explanation of the deep meaning of it is not needed for its application. The students will see an explanation of this to try to give them a sense of what the process *is*, but not too much time will be spent on this.

Mathematics must be learned by doing. Students will be shown an integration example and the majority of the session will be the students doing problems.

Timed session plan

10-20 mins – Talk on infinite sums; concept of integration. Refresher of differentiation; reversal of that process as integration.

1 hour – Problem class. This will include an off topic conversational period at a natural point.

Opportunities for learner participation and learner interaction in the session, and learner feedback on the session.

Students will be engaged directly through questions during the explanation. Their feedback will adjust the pace of the explanation.

During the problem class, the entire focus is on responding to student questions while they practice the technique learned.

Assessment: how I will identify the extent of the student's learning during this session.

Through problems: if they get the correct answers they are correctly applying the technique.

Particular aspects that I would like feedback on related to my own development as a teacher?

This is a difficult concept without much material to cover. There isn't enough to explain to break into two explanation sessions (i.e. the problems require the full explanation). Would the students be more engaged for longer if the hour of problem class was broken up by another explanation session on the board (i.e. more variety in teaching methods)?

Is this difficult concept explained well enough? In differentiation, I did not explain the background concepts well and the students panicked, until they realised they didn't need to understand the deep mathematics and only needed to know how to apply the technique. They are not mathematicians and are not turned on by mathematical thought, yet specific applications are not possible as a diverse range of subjects are covered.