

# **Development of an Individual Approach to University Learning in the Biosciences**

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# Context

12 degree programmes within the school; entry ABB

Phase 1: all students do same core modules; provides all students with same core knowledge before specialist Phase 2.

2008-09 intake: ~300students

27 PARTNERS, 8 with known disability, 26 international

how can we adequately support all students?

Some repetition of A level material inevitable at Stage 1

how can we ensure that the more able students are challenged and stimulated?

**Our aim is to offer an individualised programme of activities to help all students achieve their full potential**

# “Baseline” assessment

Carried out in week 2 & 3 of Semester 1

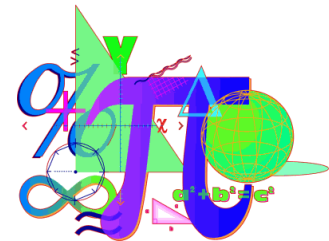
## Basic essay writing skills

*“Write a short essay reflecting on your first few weeks at University.”*



## Basic numeracy skills

Maths/chemistry calculations, online test  
Offers hints, available in practice mode after test



## Basic biology knowledge

Online bioscience test, based on A level syllabus  
EMI format





**Essay writing skills: essays returned with annotated comments, detailed feedback sheet and suggested follow-up action:**

Marking and workshops organised by Newcastle University Writing Development Centre

Workshop on grammar and punctuation (24 students)

Workshop on academic writing style (26 students)

In-Sessional English classes run by INTO

**Further comments and detailed tick box feedback on:**

Style of language

Use of English; grammar & punctuation

Structure & flow

Task fulfilment and content

Proof reading

# Numeracy skills assessment

	2007	2008
mean for test (%)	32	37

	2007		2008	
	% students attempting Q	mean mark	% students attempting Q	mean mark
1 SI & non SI units	98	48	100	57
2 Exponentials	88	52	90	53
3 Conversions	89	51	96	45
4 Molar solutions	88	22	92	25
5 Dilutions	88	49	83	44
6 Other concentrations	50	8	59	14

2 **follow-up** numeracy workshops – theory and worked examples

# Biology knowledge assessment

mean                  66%

Areas of weakness: chromosomes and cell division; skeletal muscle

Lowest 23 scores were non-A level students

**Follow-up:** Biology Catch-up book recommended for those who score poorly

Biomedicine plus programme recommended for those who perform well on test



***Biomedicine*** +

## **Undergraduate Research lectures**

OPTIONAL lectures by research group leaders

Overview of subject area aimed at Stage 1 level

Short biography

Question and answer session

Further questions after lecture, slides on Blackboard, other activities?

Feedback questionnaire



# Aims of Biomedicine Plus

Introduce students to more challenging science

Raise awareness of research in Newcastle

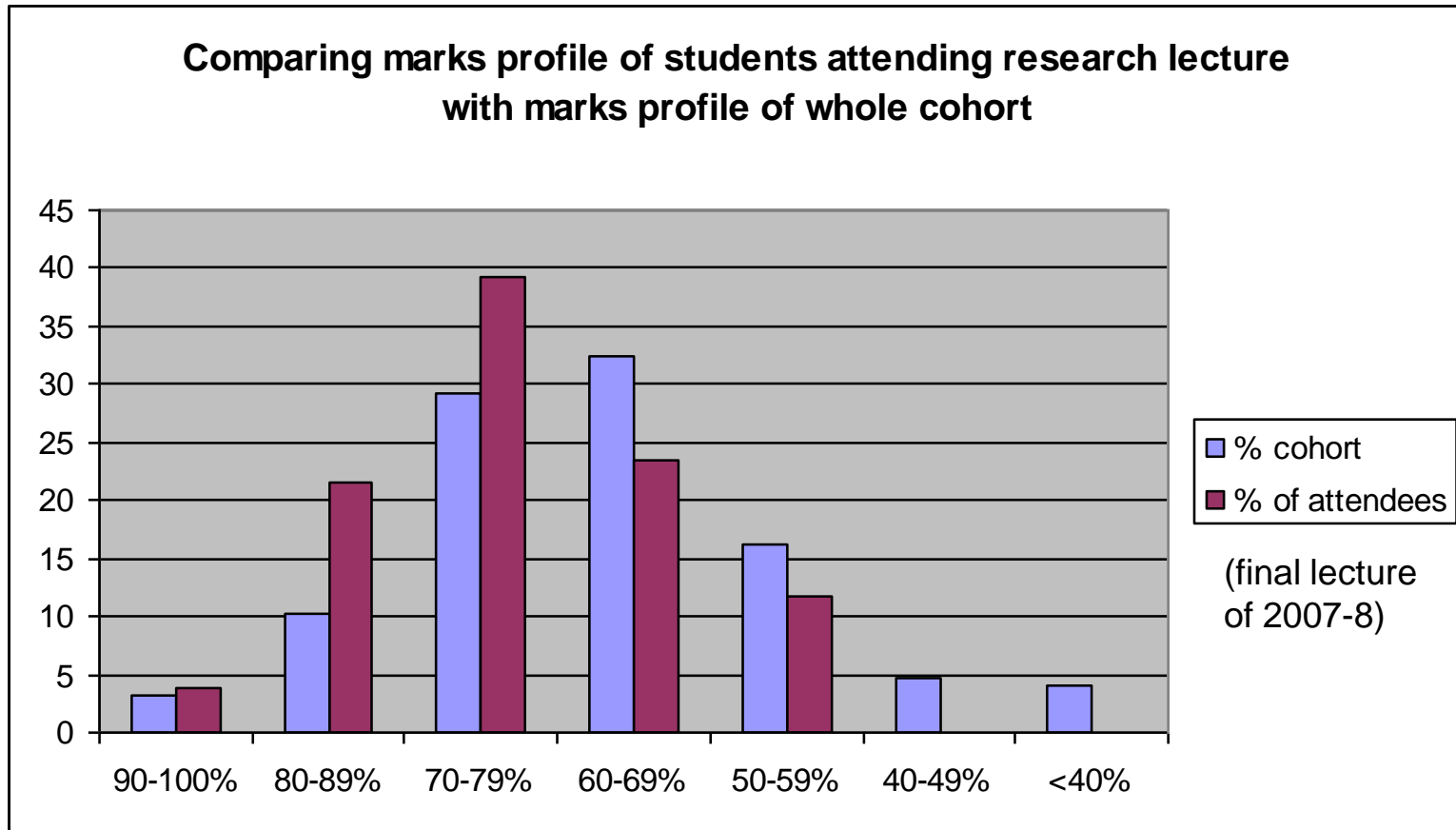
Raise awareness of career paths in research

Encouraging a broader interest in Bioscience (moving beyond “what do I need to know for the exam?”)

*should students get credit for/acknowledgement of participation?*



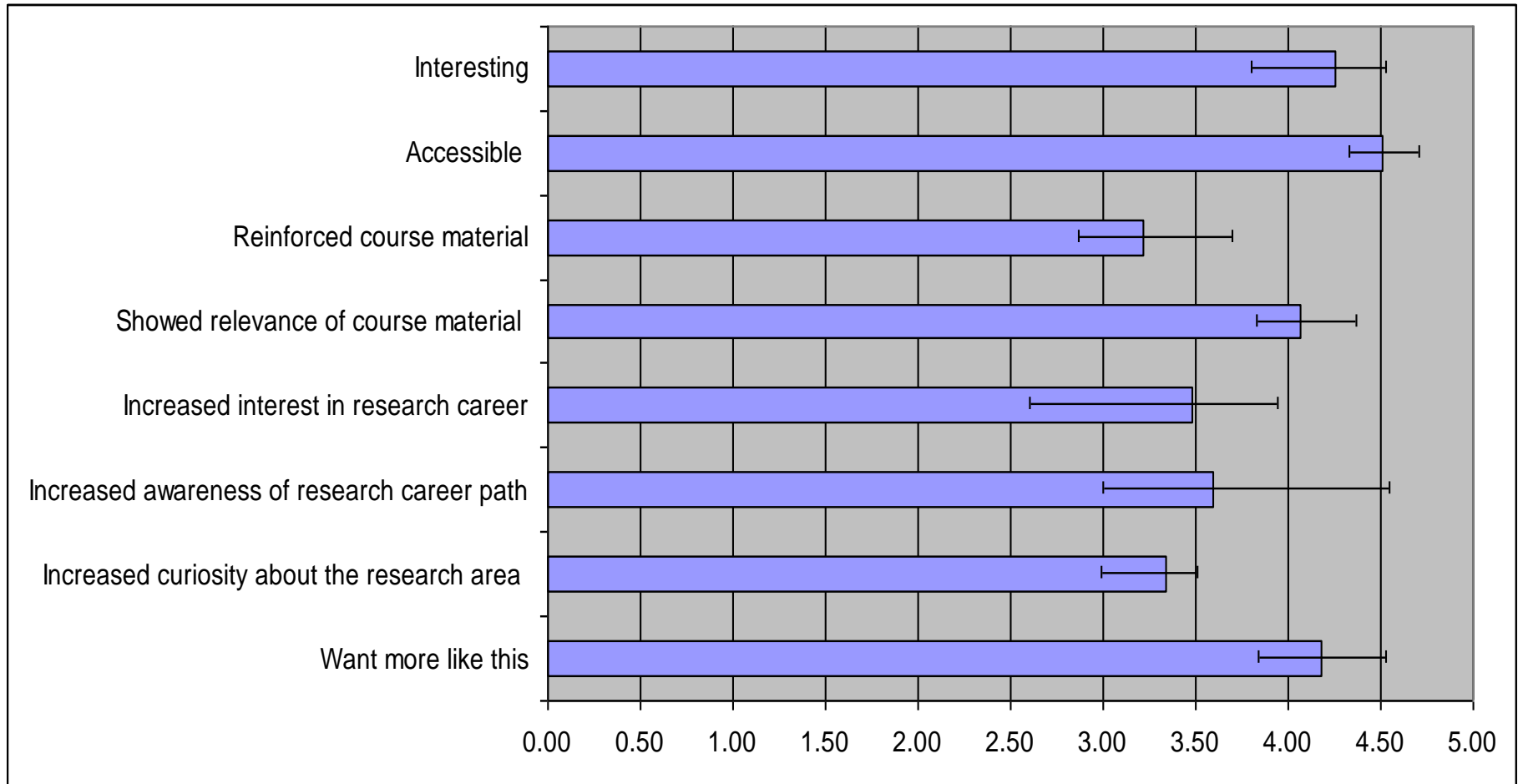
# Who attended?



Attendance rose from ~30 to ~60 students in 2007-8

Attendance in 2008-9 has been ~120 students

# Feedback (2007-8)



# Laboratory assistant scheme

part-time paid work in research laboratories (8 hrs/week in term time)

competitive application process (2<sup>nd</sup> year students)

provide students with a greater appreciation of bioscience research

reinforce laboratory skills

raise awareness of research-based career paths.

run for five years employing 74 undergraduates

*Evaluation of impact on students and staff:*

Hughes M., Brown K. and Calvert J. (2008) "Reinforcing the Links Between Teaching and Research: Evaluation of a Scheme to Employ Undergraduate Students as Laboratory Assistants" *Bioscience Education e-journal*, available at [www.bioscience.heacademy.ac.uk/journal/vol12/beej-12-2.pdf](http://www.bioscience.heacademy.ac.uk/journal/vol12/beej-12-2.pdf)



recommended to current 1st years to take a lab position to get a better understanding of how the science they are taught works in practice, and also to give more insight into career decisions

*I was able to learn techniques and discuss theoretical issues that were not discussed in the lectures*

perhaps the most useful part of my degree



# Summary

Using “baseline” assessments in the first weeks of study, we have identified those students needing additional support in writing skills, numeracy and basic biology.

These students have been provided with clear direction to appropriate support resources

Optional research lectures and laboratory work opportunities have been provided to stimulate and challenge more able students and to increase their awareness of research

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