

IMPLEMENTING A MATHS SUPPORT SYSTEM FOR FIRST-YEAR ENGINEERING STUDENTS

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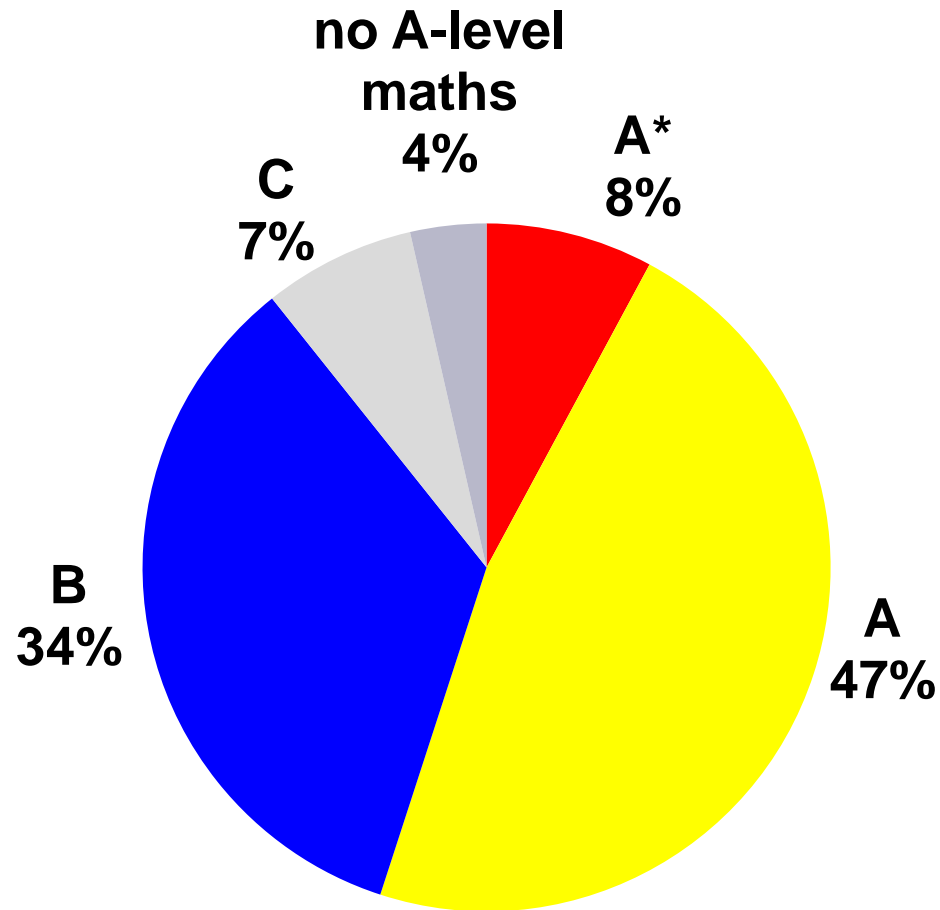
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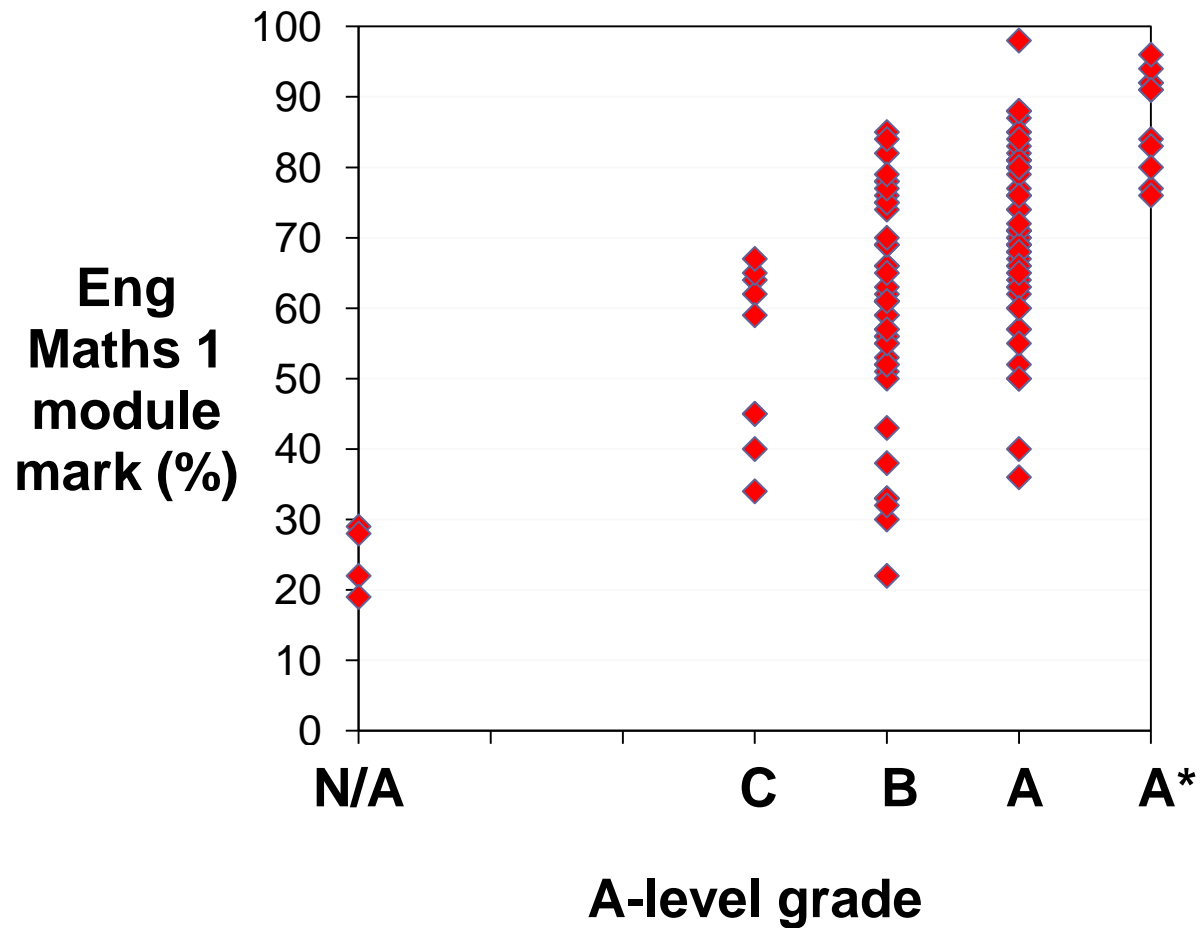
Background

- ***first year***
- ***introductory mathematics –
mainly revision of A-level topics***
- ***aerospace and mechanical engineering
undergraduate students***
- ***about 150 students***

A-level background of the students



Students' results in introductory maths module in 2010/11



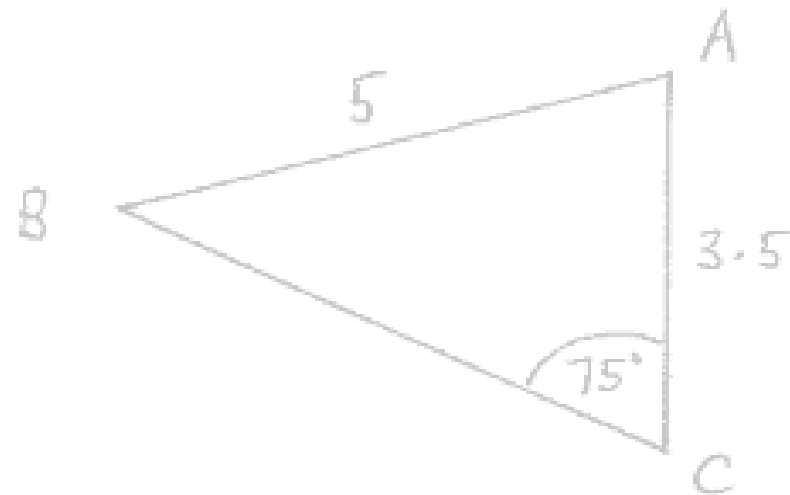
Learning Development Service at QUB

- ***opened in September 2007***
- ***aims to make academic support available to all QUB students***
- ***three full-time staff, seven PhD student assistants***



Learning Development Service – maths support services

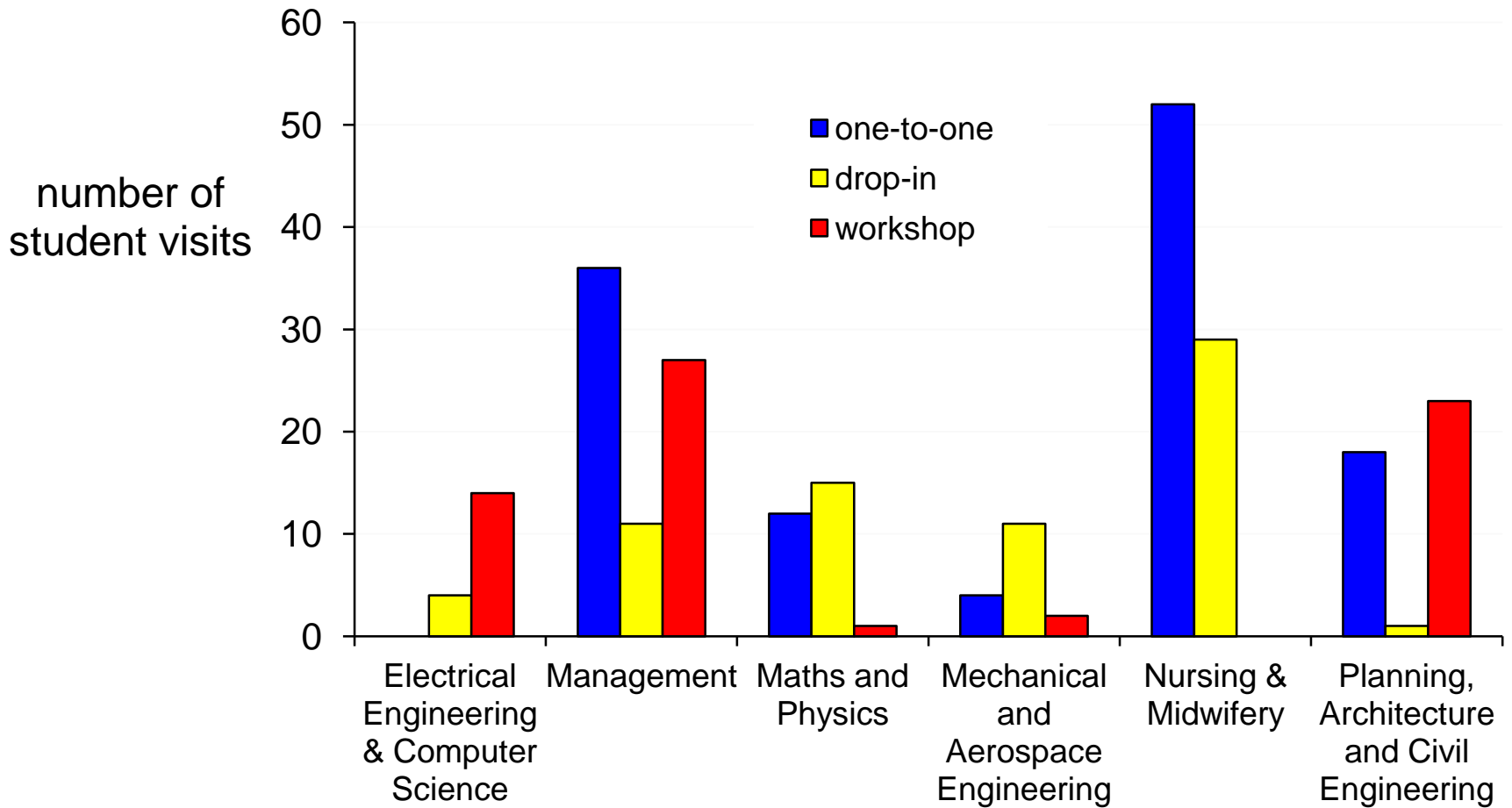
- **drop-in service**
- **one-to-one appointment**
 - **1 hour**
 - **evenings / Skype available**
- **workshop**
 - **90 minutes**
 - **afternoon / evening class**
 - **specific topic**



Apply sine rule:

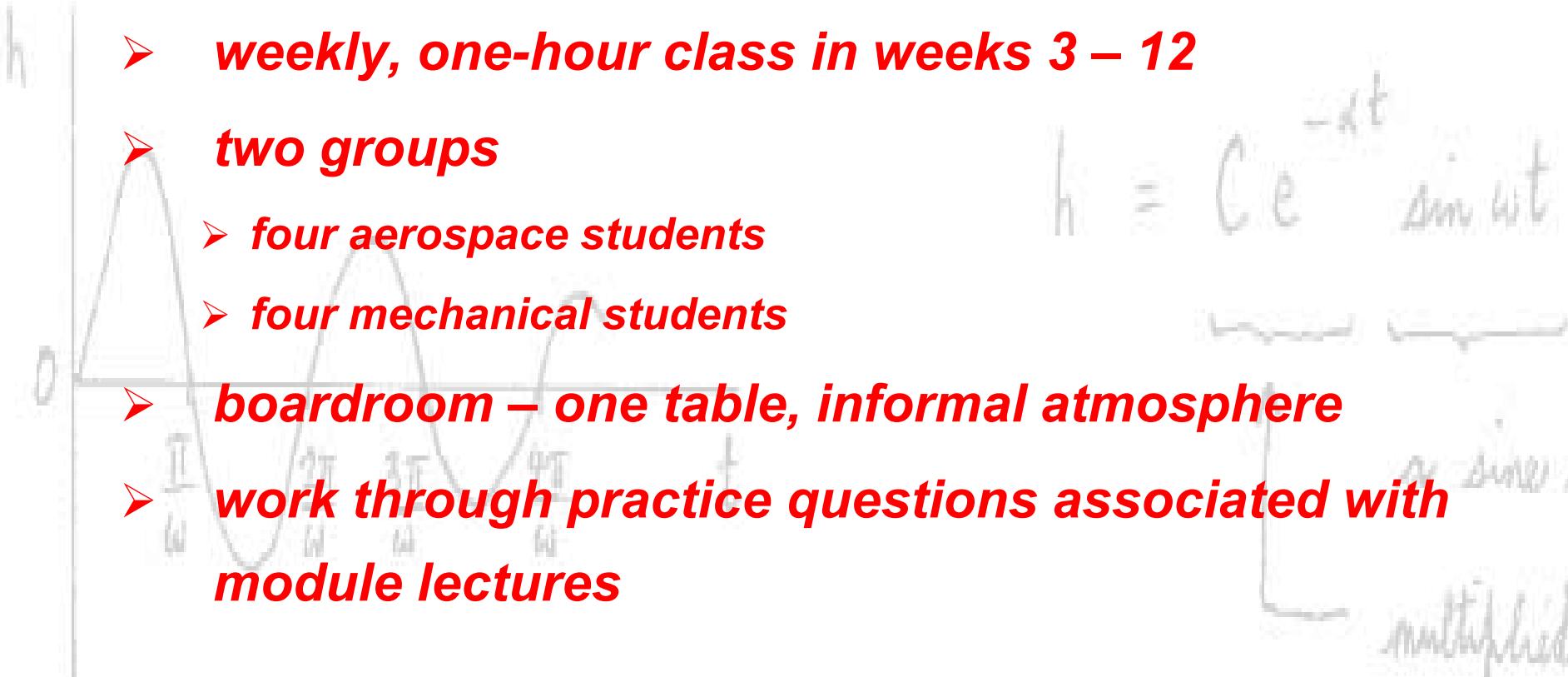
$$\frac{\sin 75^\circ}{5} = \frac{\sin B}{3.5}$$

Use of LDS for maths support in 2011/12, first semester



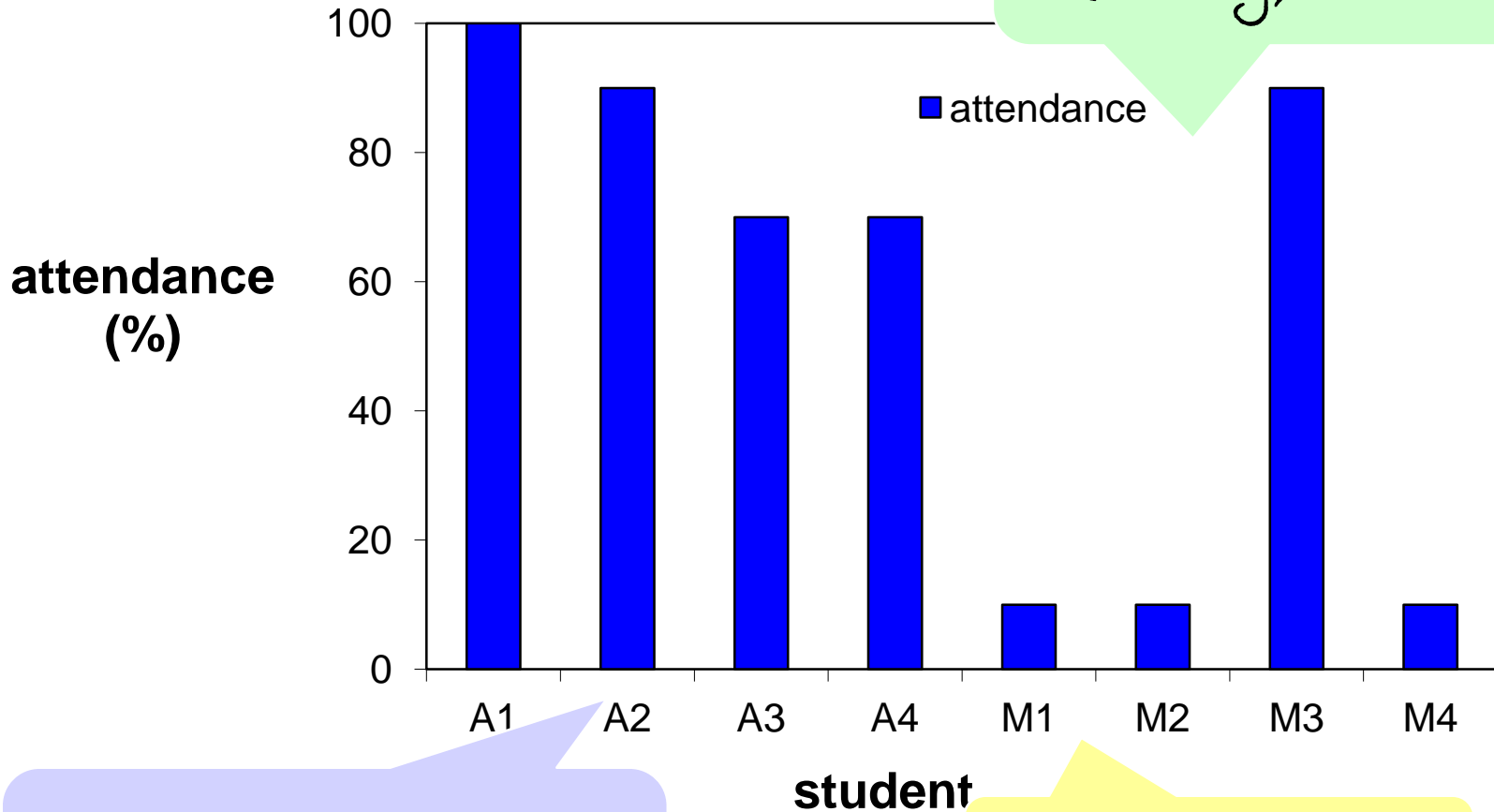
Implementation of maths support in Mechanical & Aerospace Engineering

- ***eight students with non-traditional background***
- ***students contacted in week 1, offered support***
- ***weekly, one-hour class in weeks 3 – 12***
- ***two groups***
 - ***four aerospace students***
 - ***four mechanical students***
- ***boardroom – one table, informal atmosphere***
- ***work through practice questions associated with module lectures***



Attendance

Class time -
Monday, 10 - 11 am.

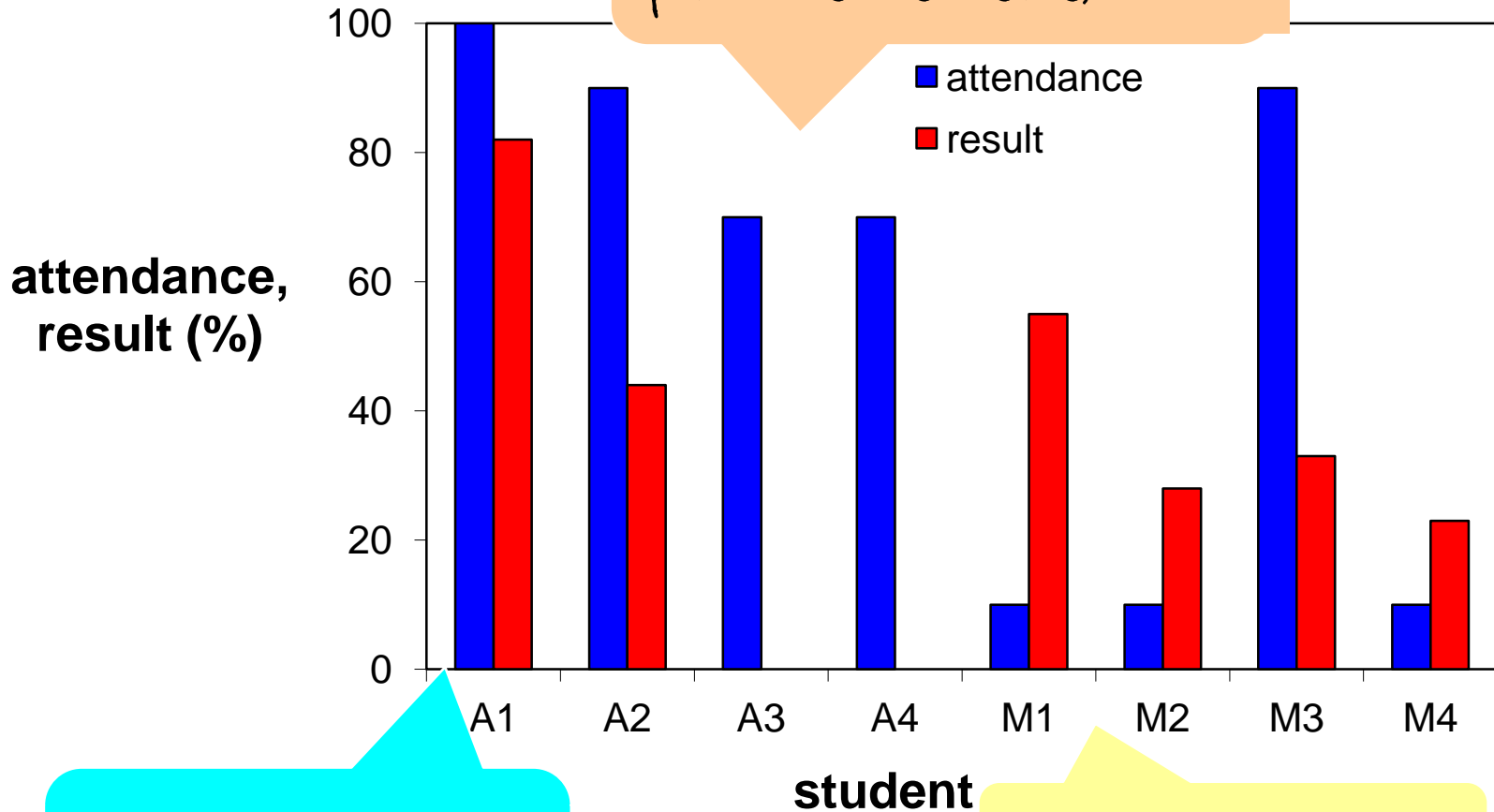


Knew each other well.
Mutually supportive.

Resit students.

Exam performance

Withdrew before first-semester exams.



Top grade at secondary level.

Resit students.

Student comments

Pace of lectures much greater than experienced at college.

One-to-one support, asking questions in small group setting less intimidating.

Teaching effective and relevant.

Homework for following week?

Basic structure - set of questions - important to set work pattern.

$$\begin{aligned}xz - 4xz^2 \\ = xz(1 - 4^2)\end{aligned}$$

Conclusions and recommendations

- ✓ *weekly support classes should continue, with more time allocated each week*
- ✓ *LDS resources heavily promoted*
- ✓ *follow up poor attenders*
- ✓ *arrange class at more suitable time for students*
- ✓ *informal, non-intimidating atmosphere*
- ✓ *structure, emphasis on student practice, much one-to-one support*
- ✓ *students with common backgrounds / similar interests grouped together*
- ✓ *admissions policy should be reviewed*