Report of the Faculty of Science Ad Hoc Committee on Grade Inflation

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Members

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Background

At the September 13, 2007 meeting of the Academic Committee, Associate Dean Leighton presented evidence of grade inflation over the last 6 years. In particular, over the last 6 years the cut-off GPA for the combined winter and fall semesters (SGPA) for the DHL (top 10%) for in-course students had increased steadily from 3.83 to 3.9. In the same period, the number of students with a SGPA = 4 had increased from 35 to 98. He had indicated that one consequence of grade inflation was a loss of information that can be used to distinguish between students when awarding scholarships. He suggested that the institution of A+ grades would restore some of the lost information. The committee (membership listed above) was struck to consider the issue of grade inflation and to bring back recommendations to Academic Committee.

Deliberations

The following questions were identified:

Is there evidence of grade inflation in the Faculty of Science over the last several years?

If so, is the grade inflation confined to the high-grade tail of the grade distribution or is it affecting most students?

If there is grade inflation is the trend broadly based in courses offered by the Faculty? If not, what sectors of the Faculty are mostly responsible, i.e. which programs, courses or study year?

If there is grade inflation is it correlated with students entering McGill from a particular pool?

Is a similar trend evident in Arts?

Data

The following plots are included in the Appendix A.

Fig. 1 SGPA cut-off for DHL for in-course students and numbers of students with SGPA = 4 from May 2002 to May 2007.

Fig. 2 CGPA cut-off for DHL for graduating students, June 1996 – June 2007, in Science and in Arts.

Dr. Correa produced the following analyses:

Fig. 3 Faculty mean grade by semester from Fall 2002 to Winter 2007.

Fig. 4 Faculty fraction of A grades by semester from Fall 2002 to Winter 2007.

Fig. 5 As Fig. 3 but stratified by year of course level.

Fig. 6 As Fig. 4 but stratified by course level.

In addition, Dr. Correa produced plots of the trends stratified by department and course level (300-level, and 400- and 500-level). Some sample selected plots are included in Fig. 7. Individual departments can obtain the data for their department from Henry Leighton should they wish to look into possible trends in their course grades.

Evaluation of the Data

Fig. 1 shows the original data for in-course students that prompted this study. There is a clear trend over the last 7 years in the number of students with an SGPA of 4 and the cut-off for the DHL.

Fig. 2 shows the cut-off for the DHL for graduating students for the last 12 years. This cut-off is based on the CGPA and so implicitly includes grades averaged over the previous three to four years. There is a weak trend in the cut-off that is primarily driven by the increasing cut-off over the last 4 years which is consistent with the results shown in Fig. 1. The results for Arts show a weaker and insignificant trend driven by a low CGPA in the first year.

There is no evidence of an overall trend in the mean grade in Science courses in the last 5 years although there is a small persistent trend of winter semester grades being lower than fall grades (Fig. 3). However, there is a steady increase in the percentage of As awarded, which goes from about 0.23 to about 0.26 over 5 years (Fig. 4).

When the trends in mean CGPA are broken down according to course-level, U0 courses showed a slight negative trend (3.03 to 2.93), the mean U1 grades were steady, the mean U2 CGPA increased from 3.11 to 3.19, and the mean U3 CGPA increased from 3.35 to

3.43 (Fig. 5). The percentage of A grades increased from 0.23 to 0.28 in U2 courses and from 0.31 to 0.39 in U3 courses (Fig. 6).
The main conclusion is that on a Faculty-wide basis the trends evident in Figs. 1 and 2 are due to a higher proportion of A grades being awarded in upper-level courses rather than to a broadly-based increase in grades.

An examination of the data on a department by department basis established that the trends in the percentage of A grades in U2 and U3 courses can not be explained by shifts in enrollment from departments with lower than average proportions of A grades to those in which the average number of A grades in U2 and U3 courses is greater than average. The conclusion is that in at least some departments there has been an increase in the proportion of students who obtain grades of A in 300- and 400-level courses. Examples of the average percentages of A grades in U2 or U3 courses given in some departments are shown in Fig. 7. Generally there is considerable scatter but there is an indication in these selected cases of an increase over the last five years. These are examples and similar trends may be found in other departments. There are many possible explanations for these trends and it is likely that there may be department-specific explanations in some cases. Now that the population that accounts for the increasing proportion of A grades has been narrowed to 300- and 400- level courses, the committee encourages all departments to look at the data for their department in more detail and where appropriate to monitor future trends.

The committee also recommends that a similar study be repeated in two years.

The committee considered briefly the issue of the A+ grades and it was clear that there was no enthusiasm in the committee to push for the initiation of an A+ grade, regardless of whether or not an A+ had a grade point value greater than 4. Indeed, it was argued that the introduction of an A+ could be a force for grade inflation.

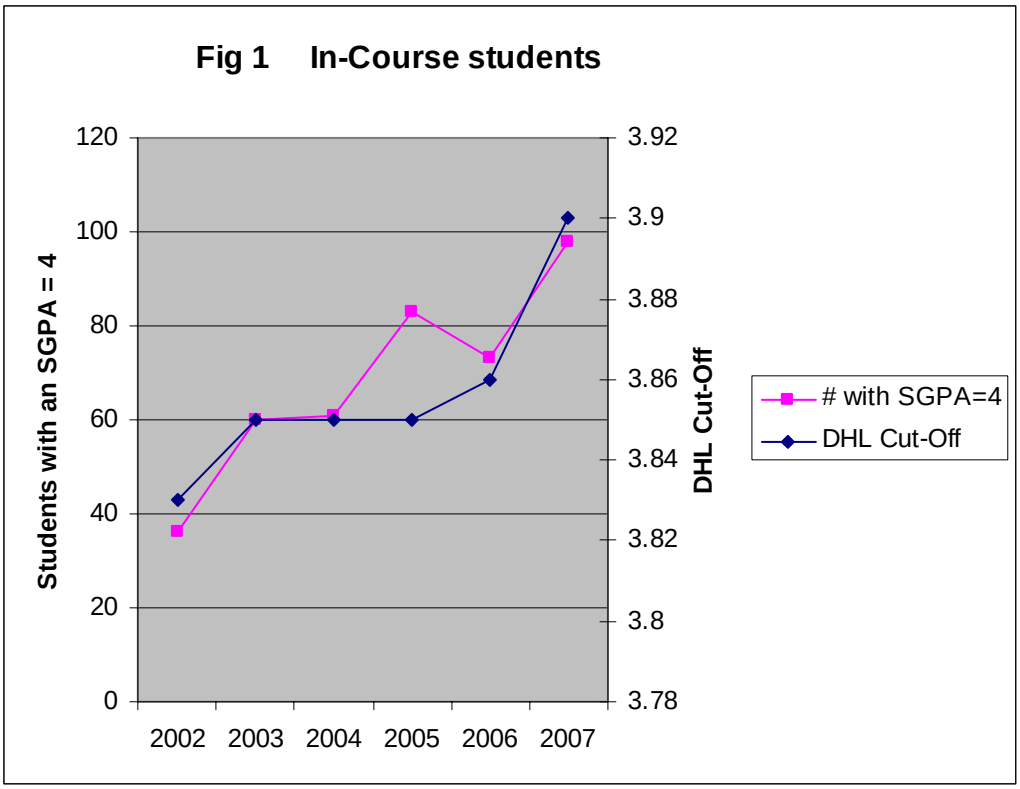
Fig 1 In-Course students
120
100
80
60
40
20
0
Students with an SGPA = 4
3.92
3.9
3.88
3.86
3.84
3.82
3.8
3.78
DHL Cut-Off
2002
2003
2004
2005
2006
2007
with SGPA=4
DHL Cut-Off

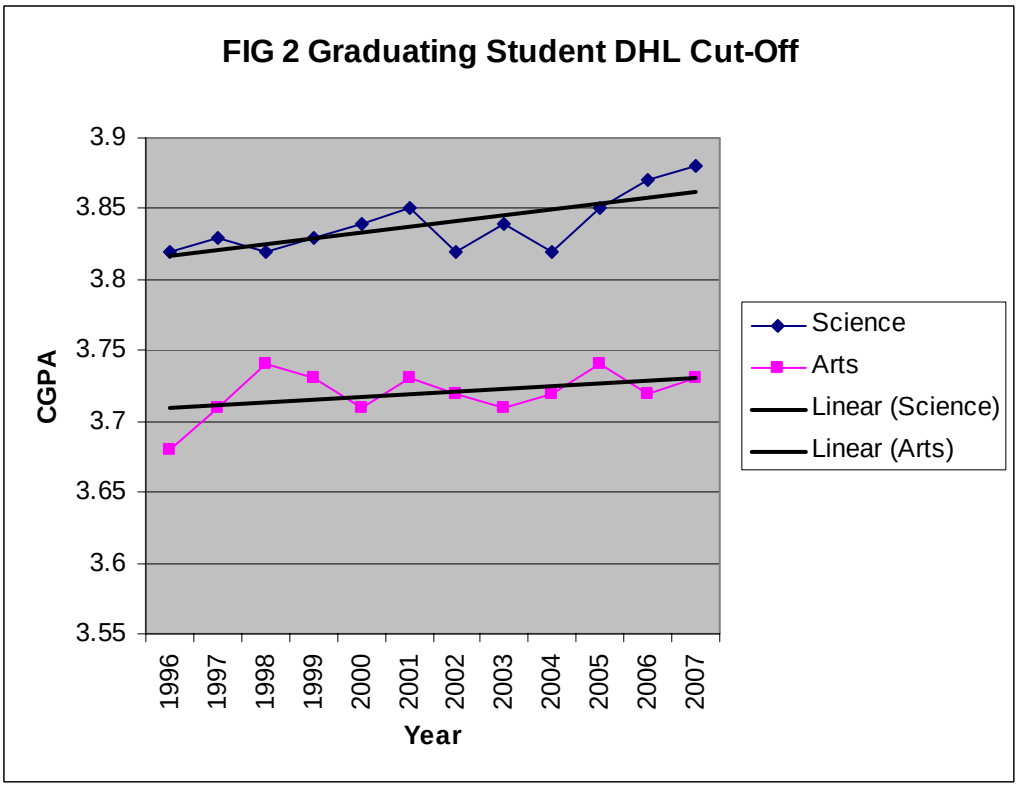
FIG 2 Graduating Student DHL Cut-Off
3.9
3.85
3.8
3.75
3.7
3.65
3.6
3.55
CGPA
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
Year
Science
Arts
Linear (Science)
Linear (Arts)

Fig. 3 Science Mean Grades

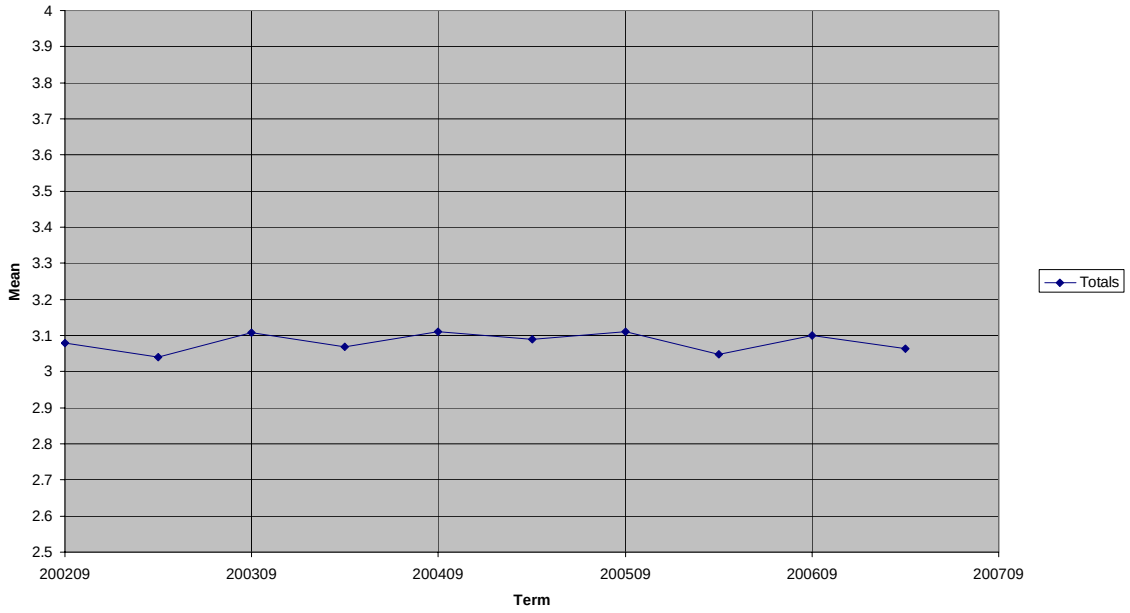

Fig. 4 Percent A's

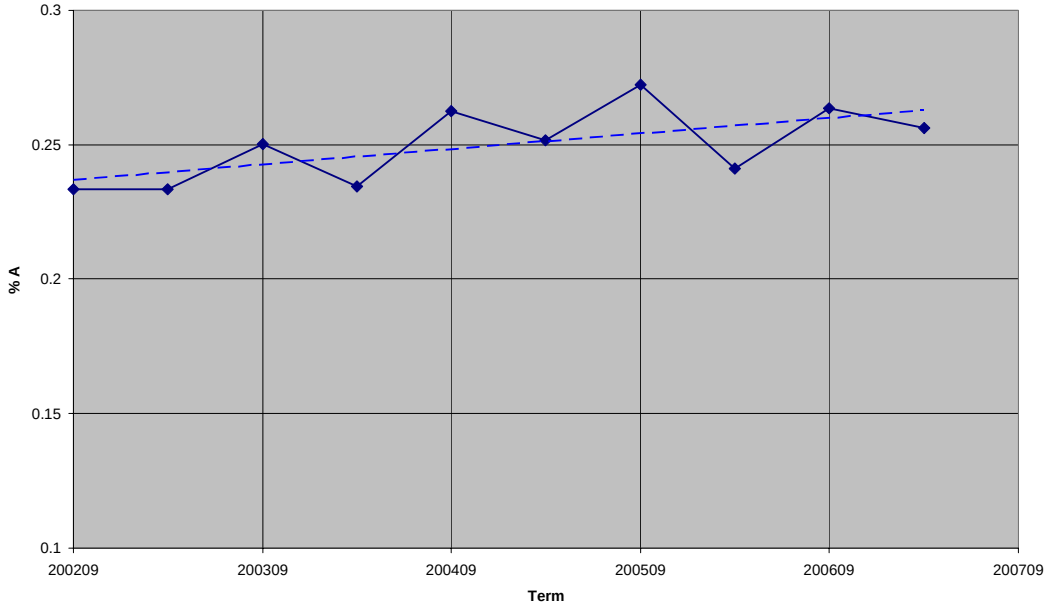

Fig. 5 Science Mean Grades by Course Level

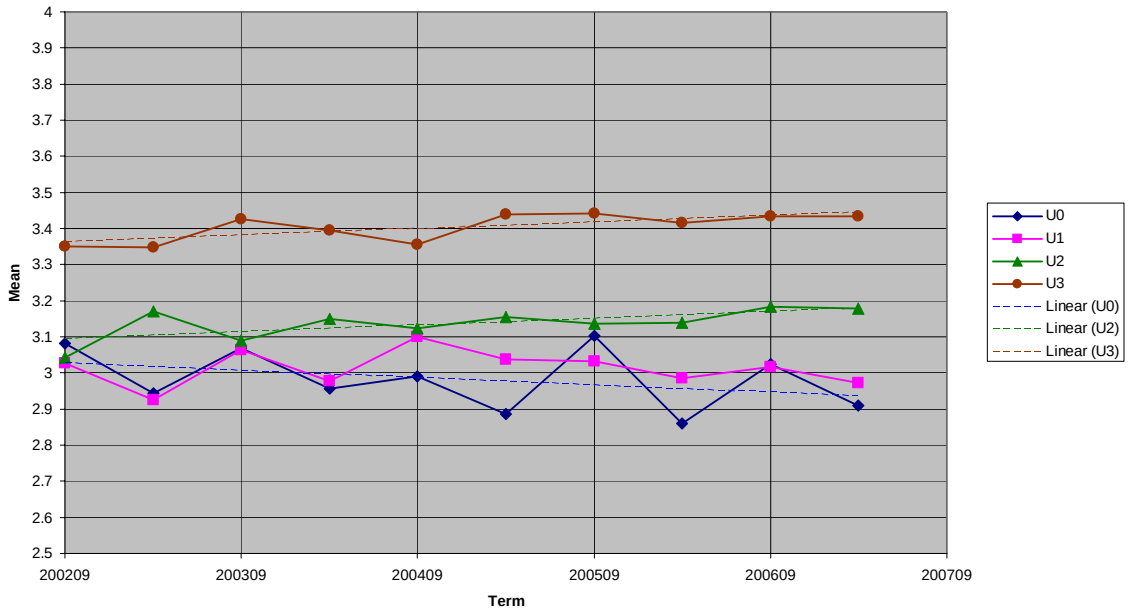

Fig. 6 Percent A's by Course Level

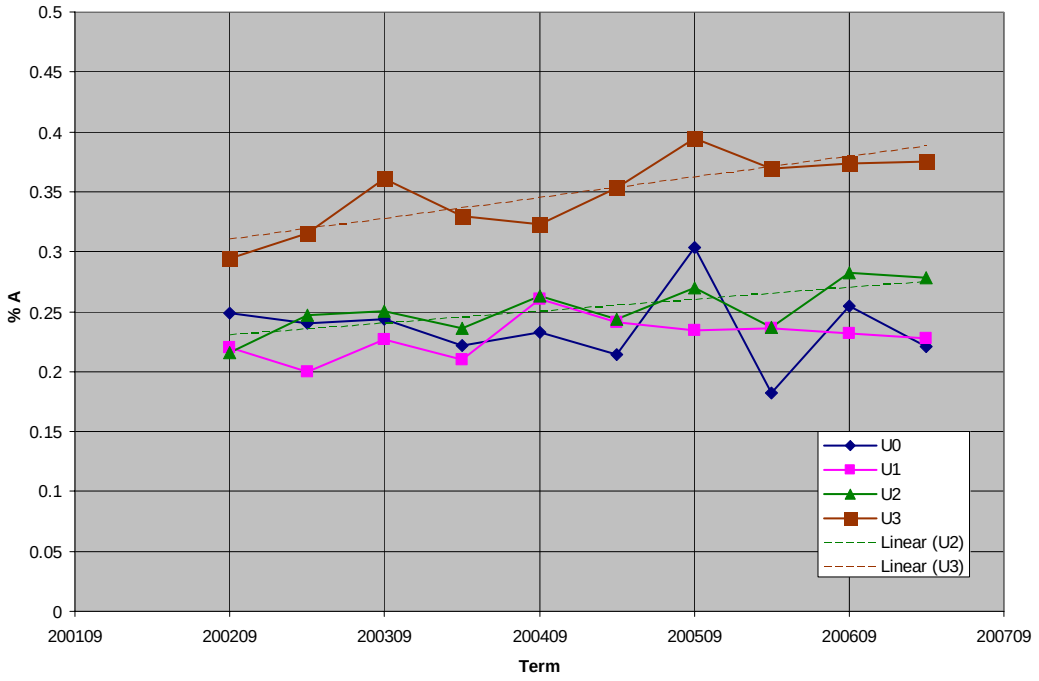

FIG 7a Microbiology U2 Courses % A

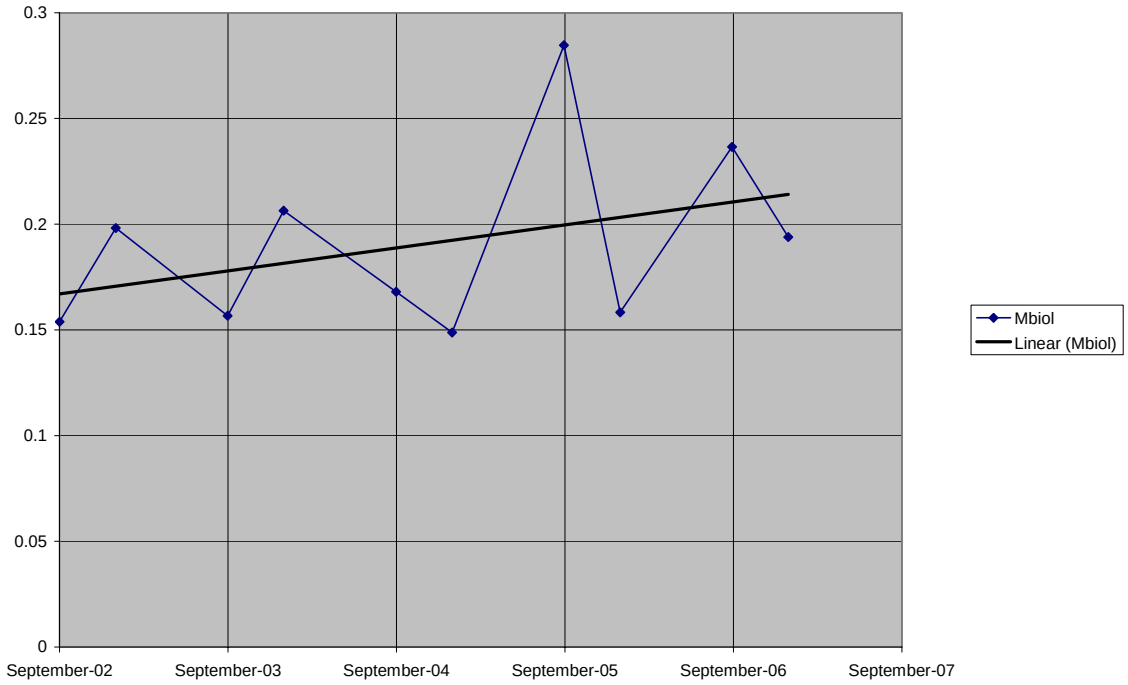

FIG 7b Comp. Sci. U2 Courses % A

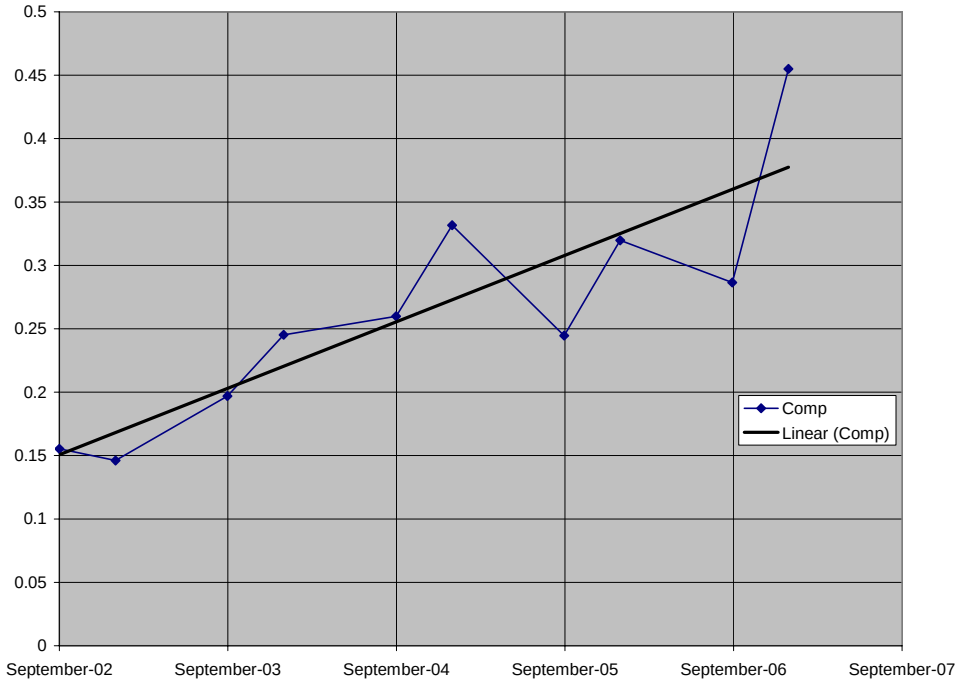

Fig 7c PHYSICS U2 Courses % A

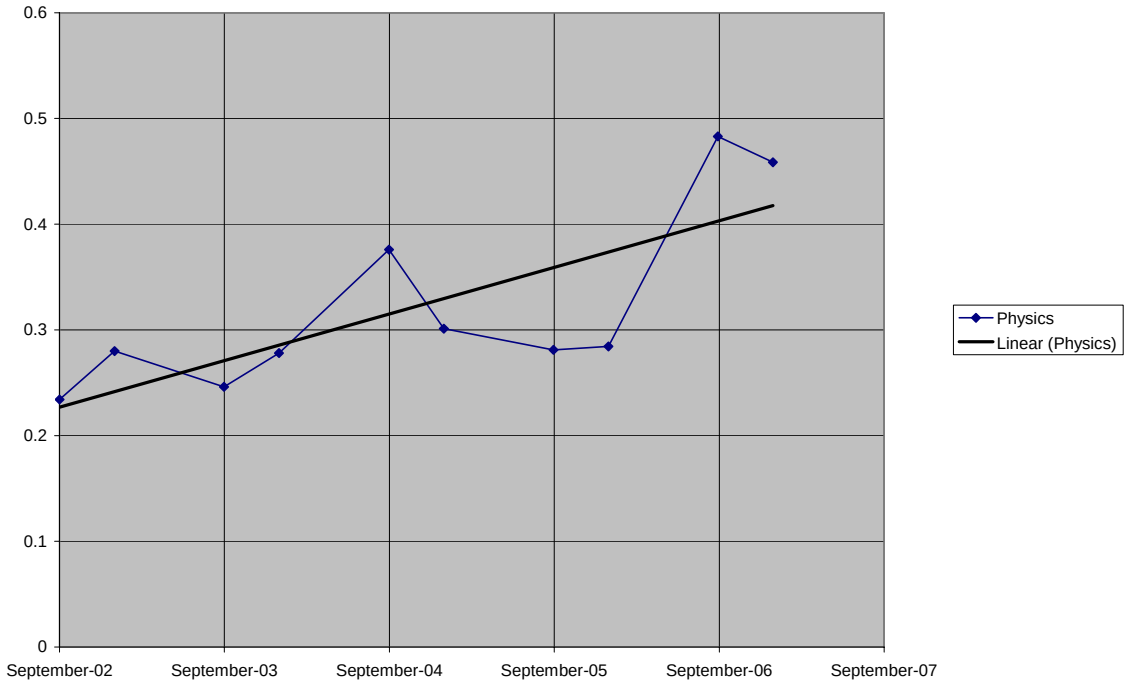

Fig 7c BIOCHEM U3 % A