# Should lectures be compulsory?

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## Introduction

Undergraduate teaching units for internal students enrolled in agricultural science degrees at the University of New England typically involve two to three hours of lectures per week and a compulsory three hour practical class. Historically lectures have been optional for students, and many lectures are poorly attended. This has led to debate amongst teaching staff in the school about whether learning outcomes as measured by assessment grades would be improved if students were obliged to attend lectures, and a minority of unit coordinators have made their lectures compulsory. A study was carried out to assess the role of lectures in SOIL 220 (Introduction to Soil Science), a core unit with two non-compulsory lectures per week.

Despite much anecdotal evidence concerning lecture attendance and some preliminary work in other faculties on our campus (Brien and Smyth, in preparation), a search of mainstream electronic databases revealed little in the way of exacting research. Nevertheless, the more generalised literature provided some useful guidance so we sourced some of the available literature on active lecturing techniques, student motivation for learning and current learning and teaching theory in higher education (Barry 1995; Biggs 1999; Johnston and Cooper 1997; Ramsden 1992; Ramsden 2003; Tomlinson 2003). From that analysis, we devised a series of teaching and learning strategy trials and used an independent evaluator (Smyth) to conduct peer reviews of lectures, to ascertain the impact of new techniques. As well as evaluating the particular strategy being trialled, the evaluator analysed teacher-student and student-student interactions to see what level of student engagement was occurring and whether this could shed any light on students' propensity to attend lectures.

## Methodology

Attendance was monitored by means of a class roll for the 14 lectures (seven weeks) which comprise the soil chemistry (Guppy) and soil physics (Lockwood) sections of the unit. The students were informed of the purpose of the exercise and that the roll did not imply lectures were compulsory. Students were also surveyed anonymously by two questionnaires administered during compulsory practical classes at the end each of the sections of the unit. Both questionnaires asked for reasons (select from list or specify other) why students had missed any of the last three lectures, and the second questionnaire also probed student perceptions of issues related to study and lecture attendance for the unit.

## Would compulsory lectures improve student grades?

Over 14 soil chemistry and physics lectures, average attendance was 54%. After removing from the dataset repeat students (who often miss lectures because of timetable clashes) and students who did not complete, there was a slight but significant relationship between attendance and exam marks for soil chemistry and physics ($p<0.001$, r-sq = 0.31, n = 60) and with overall mark for the unit ($p<0.001$, r-sq = 0.36, n = 59). Six out of 59 students in the survey failed the unit, and none of these attended more than 50% of the lectures.

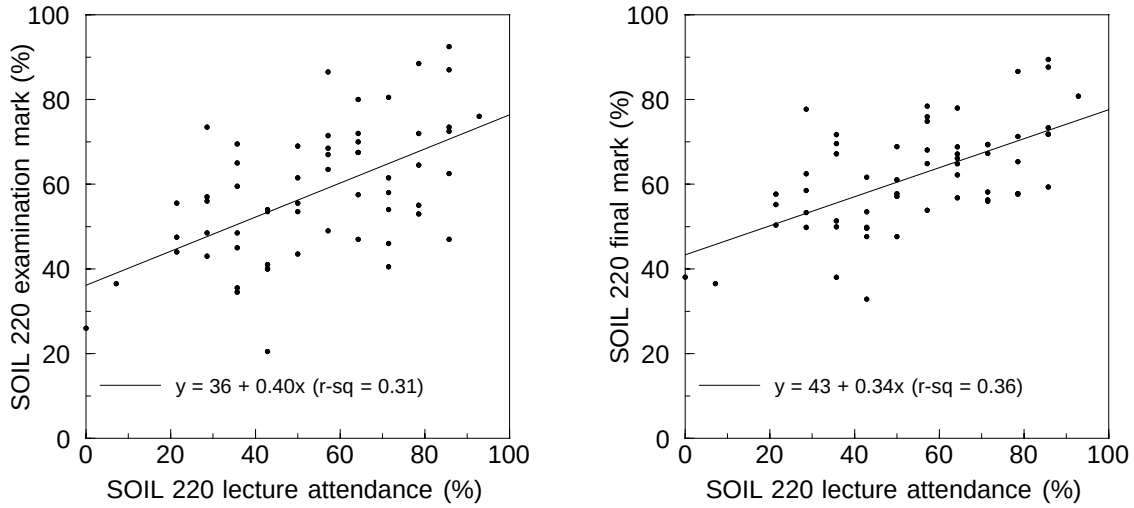


**Figure 1**. The relationship between SOIL 220 lecture attendance and (a) final examination mark, or (b) total mark for the unit (including practical marks and a mid-semester test)

A simple conclusion to jump to from the result that 36% of the variation in final mark for SOIL 220 was explained by lecture attendance would be that compulsory lectures would improve assessment outcomes. However the conclusion might be erroneous as the relationship could also be the result of other factors such as student motivation, interest and aptitude for the soil science unit, which could affect both attendance and assessment marks. This can be seen by comparing assessment outcomes for SOIL 220 with those for a comparable core unit for agriculture students: AGRO 223 (Agricultural ecology and crop physiology). AGRO 223 was chosen because it has compulsory lecture attendance, and 33 first-time students completed both units during second semester 2005. There was a significant though weak positive linear relationship between attendance in SOIL 220 lectures and mark in AGRO 223 ($p<0.05$, r-sq = 0.16), which suggests that making lectures compulsory will not entirely eliminate the poorer performance of those students who skip lectures if they can.

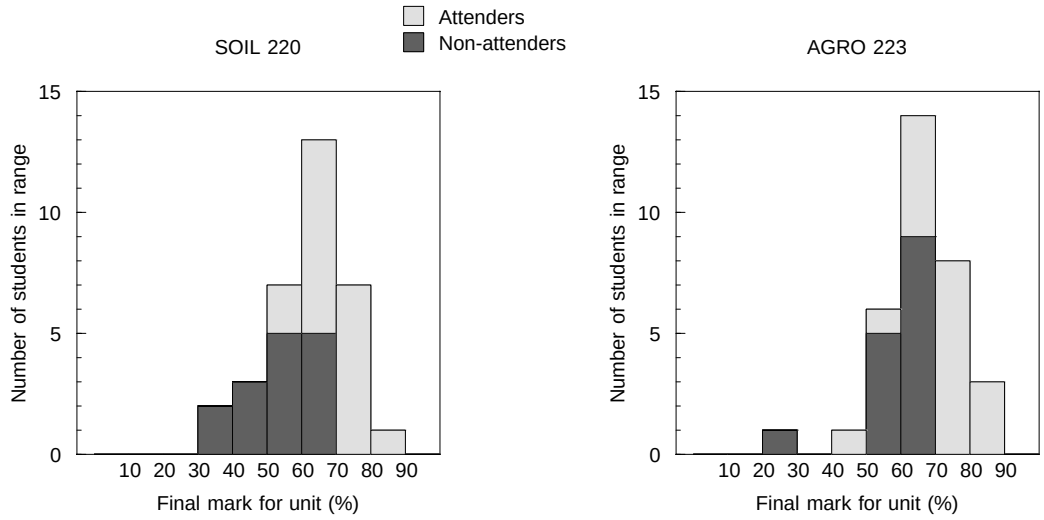


**Figure 2**. Distribution of marks for students who attended more than half of SOIL 220 lectures (attenders), and those who attended less (non-attenders) (a) in SOIL 220 and (b) in AGRO 223

Figure 2 shows the distribution of marks in SOIL 220 and AGRO 223 for students who attended more than 50% of the SOIL 220 lectures ("attenders"), and those that attended less lectures ("non-attenders"). The distribution of marks for all 33 students in SOIL 220 and AGRO 223 was very similar: medians 66.1 and 66.0, and interquartile ranges 13.0 and 13.3 respectively. Figure 2 shows that some of the non-attenders improved their marks in AGRO 223 and only one of the 15 non-attenders failed the AGRO 223 (mark < 50%) compared to five failing SOIL 220. These results give some support to arguments for compulsory lecture attendance based on assessment outcomes.

## Do students want lectures to be compulsory?

The main reason students selected for missing lectures was that they had other work such as an assignment or preparation for a test which took priority (46 responses out of a total of 78). This suggests poor time management by the students rather than dislike of the subject, competing social activities, clashes, medical reasons or paid work commitments was mainly responsible for low attendance. Students also underestimated the percentage of the soil chemistry and physics of lectures they missed. Only 14% of students believed they had attended half or less of the lectures, but the actual figure from the roll was 47%.

Despite this, students believe that lectures are useful and should be attended. The peer review conducted by the independent evaluator formed part of the qualitative data set when added to the open ended student responses in the student surveys. They also revealed that students were engaged in learning if they attended lectures. Students were asked which of the wide range of learning activities and resources provided for the unit had greatest overall value. These included: a study guide, *WebCT* online resources (discussion boards, quizzes etc), practical classes, lectures, and the interactive *Oz Soils* CD-ROM (Lockwood, Daniel and Greenwood 1999). Over 98% of students rated lectures most highly, followed by the printed study guide, practical classes, *WebCT* and *Oz Soils*.

Students mainly want to be able to decide whether to attend lectures, with 73% indicating that they did not think lecture attendance for SOIL 220 should be compulsory. Supporting this, students' unstructured responses indicated that

- a deleterious effect of making lectures compulsory could be more disruption form unengaged students
- the flexibility to manage their own study program was an advantage of non-compulsory lectures
- the lecturers demonstrated a sound knowledge base
- some would prefer the inclusion of tutorials.

## Conclusion

Both the proponents of compulsory lectures and those who feel they should be non-compulsory can draw on the findings of this survey to support their stance. There is a suggestion that compulsory lectures might improve student marks, particularly for some weaker students, although this conclusion is tentative given the small student sample size. On the other hand a large majority of students want to manage their own lecture attendance, even if many of them do it poorly. Underlying the debate is a question of educational philosophy: is our main goal as lecturers to do what we can to maximise students grades (and by inference knowledge of the subject) and to minimise the student failure rate, or do we also include a broader aim of leading students towards more self-direction and responsibility for their own learning. If we take the latter view, then strategies other than making lectures compulsory would be more appropriate. For example we should look at ways to identify those non-attenders who underachieve, and provide support in time-management and study techniques.

## References

Barry, K. (1995) Lecturing, Explaining and Small-Group Strategies. In F. Maltby, N. Gage and D. Berliner (Eds) *Educational Psychology: An Australian and New Zealand Perspective*. Brisbane: John Wiley and Sons, 356–417.

Biggs, J. (1999). *Teaching for Quality Learning at University: What the Student Does*. Buckingham: Society for Research into Higher Education and Open University Press.

Brien, D.L. and Smyth, R. (in preparation). *"P" for a degree: Regional writing students' attitudes to learning*.

Johnston, S. and Cooper, J. (1997) Quick-thinks: Active-thinking Tasks in Lecture Classes and Televised Instruction. *Cooperative Learning and College Teaching newsletter* **8**(1).

Lockwood, P.V., Daniel, H. and Greenwood, K.L. (1999) *Oz Soils – An interactive introduction to soil science* (3rd edn). Armidale: University of New England.

Ramsden, P. (1992) Evaluating the Quality of Higher Education. In *Learning to Teach in Higher Education*. London: Routledge, 217–247.

Ramsden, P. (2003) *Learning to Teach in Higher Education* (Second edn.). London: Routledge Falmer.

Tomlinson, C. A. (2003) *Fulfilling the Promise of the Differentiated Classroom: Strategies and Tools for Responsive Teaching*. Alexandria, Virginia: Association for Supervision and Curriculum Development.