

DO STUDENTS NEED FACE TO FACE TEACHING?

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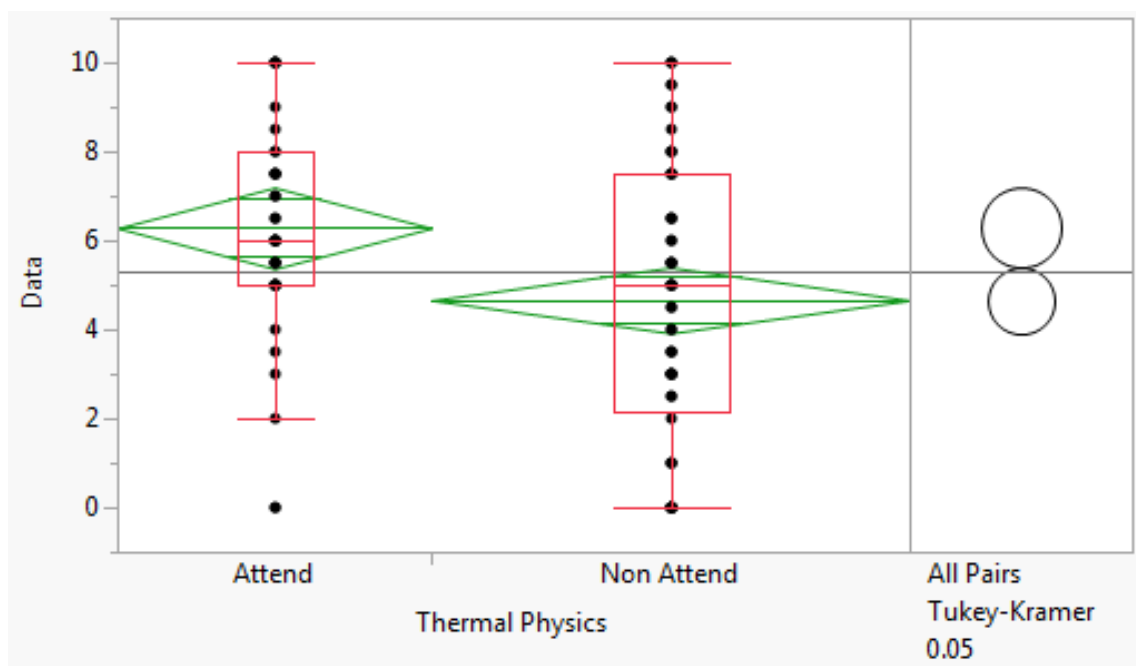
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ABSTRACT

At the University of Newcastle, we have two first year physics courses that comprise the first of many core courses for science and engineering students. These first year physics courses contain a variety of topics that have been staggered to outlay a story enveloping all aspects of basic physics. Over the years we have implemented a variety of teaching methods and technology, including active demonstrations, clickers, in-house mobile app technology, and computer aided learning as well as online quizzes and e-book usage. With all these changes there is no statistical difference in the final grades over the last 8 years. This presentation however is aimed at discovering if there is any statistical difference between attendance in lectures and exam results. There is however a clear statistical difference in the mid semester tests and final exam marks for those students attending lectures (or engaged with the course) over those who are either relying on videos of the lectures simply the notes supplied. Our first year classes typically have around 170 students with approximately 55% attending lectures and only 40% attending tutorials. These numbers are an average across the semester as they progressively drop over time. The individual topics in the courses also showed a variety of outcomes. In general, those students who engaged averaged a pass mark while those that did not engage failed. Topics such as thermal physics for example show almost two grades of separation (16% difference, p -value = 0.007) in the average marks for those attending lectures compared to those who did not.



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