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Active learning, student numbers, and formal session attendance in Statistical Physics III at the University of the Witwatersrand

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Active learning techniques have been employed in teaching the Statistical Physics III module (final year undergraduate level) at the University of the Witwatersrand since 2009, and have proved very effective. This is evidenced by the excellent pass rates, increased class averages, and obvious retention of the core knowledge presented in the course. More recently (since 2015), enrolment for the module has doubled from approximately 25 students to approximately 50 students, leading to a statistically significant drop in the class average for the module. A re-examination of some of the active learning strategies employed has been ongoing following the increase in student numbers. It has become evident is that the percentage attendance at formal lectures has decreased visibly. This can be seen in both 2nd Year and 3rd Year modules in the Physics major stream, and the literature indicates that this is by no means limited to Physics, or to South African Universities. This paper will report on the core active teaching strategies employed in the module, the changes that have been made to the implementation of these strategies to accommodate the increased numbers, and the measures introduced to combat the tendency to for students to miss formal teaching sessions.

Apply to be
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   award (Yes / No)?

No

Level for award
 (Hons, MSc,
   PhD, N/A)?

N/A

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