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UCT lecturer recognised for making physics accessible

Teachers that inspire students to become scientists are desperately needed in a country whose basic education levels in maths and science are constantly being scrutinised.

Professor Gregor Leigh, who convenes two *Physics for Engineering* modules and teaches about 650 students, is one of this year's recipients of the University of Cape Town (UCT) Distinguished Teacher Award (DTA).

The DTA is the highest accolade awarded to teaching staff at all levels within the university and recognises excellent teaching. Prof Leigh has left an indelible mark on his past and present students.

According to Prof Leigh, the main challenge of teaching physics at university level is diversity on so many levels including preparedness for tertiary education, language skills, mathematical skills, and, most important of all, degree of self-confidence and sense of belonging.

"In my first few lectures I explicitly address the phenomenon known as the Imposter Syndrome, but it can take first-year students, even those from local, privileged secondary schools, a whole semester to settle in and believe in their ability, especially in the face of first-time-ever setbacks and failures. Underprepared students from rural areas are often completely overwhelmed, and I rue my ongoing inability (and lack of opportunity) to ameliorate their plight," he said.

The content of the classical mechanical physics taught at first-year level hasn't changed much in 400 years, but the methodology certainly has. Prof Leigh recalls that when he was a student they were expected to develop problem-solving skills pretty much by osmosis while watching lecturers do worked examples on the board.

In line with modern physics education research, his own Master of Science thesis showed the benefit of explicit training in multi-representational problem solving, even among "weak" or underprepared and unmotivated students at another tertiary institution.

"With these tools at their disposal even students formerly wary of physics begin to enjoy it and see the fundamental rightness of it, and their appreciation and gratitude shine

through. Their marks improve, but more importantly, so do their emotional attitudes towards the subject. Their expectations become more appropriate and their work ethic improves. This is what has got me out of bed for first-period lectures these past two decades!”

In his opinion a good teacher has the ability to listen carefully to what students are really asking or needing, and to know how to fetch them from there to a proper understanding of the concepts, and in the process getting them to see the bigger, generalised picture.

Honoured by the award, Prof Leigh shared: “We’re all human, but my experience is that teachers are even more so. We’re often more unsure, more insecure, about what we’ve actually achieved in the classroom than many other people whose successes can be measured quantitatively on a balance sheet, or by the number of storeys built, or clients processed.

“Whatever definition you use for teaching, or whatever form it takes, for those of us who are passionate about engaging, awakening and motivating students to learn (and there are many of us at this university), the recognition of our efforts is an essential part of keeping us on track, of reassuring us that we’re ‘doing the right thing’.”

ENDS

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