

Module 12 - Teaching mathematics

Authors: Birgit Loch and Katherine Seaton

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Birgit Loch:

Hello, my name is Birgit Loch. I'm the Teaching Chair in the College of Science, Health and Engineering at La Trobe University. I'm a mathematician, and I research in Mathematics Education, STEM Education, and Educational Technologies.

Katherine Seaton:

And I'm Katherine Seaton, I'm also a mathematician. I'm based in the Department of Mathematics and Statistics here at La Trobe University. My original research area was Mathematical Physics and I teach large first year classes and large second year classes. I've developed an interest also in Tertiary Mathematics Education.

Birgit Loch:

We would like to welcome you to the teaser on teaching mathematics. We have written this teaser based on a learning and teaching unit that was funded through an Australian Learning and Teaching Council Project. This unit is now offered to lecturers and tutors in the mathematical sciences through the Standing Committee on Mathematics Education of the Australian Mathematical Society. The unit is AQF level 8 and can be used as an elective in Graduate Certificates of Higher Education.

Katherine Seaton:

I was one of the participants in the pilot running of this unit and in fact I did use it as an elective in my Graduate Certificate of Higher Education. For the last few years I've been the coordinator of that unit. In the unit, and at least in this teaser, we've taken pieces out of the unit that we thought might be great as an introduction and one of them is to look at an approach to how students learn mathematics and how that informs our teaching practice. The idea that we've chosen, one of several in the unit, is the idea due to Skemp, of the distinction between relational understanding of mathematics and an instrumental understanding. Instrumental is really where you can turn the handle and produce the answers in a black box sort of way, but the relational is what we want our students to go for. You are led by making this distinction and thinking about what it looks like when students have those attributes and how you might move them from one way of operating to another through your teaching.

Birgit Loch:

We've selected a few more topics from the original unit, for example a range of strategies if you are in the situation where you are running out of time and you have to find a way of deciding what to do ... Do you still cover all the material, or do you find another way of dealing with this. Other topics we have included are the importance of service teaching in maths and stats, and we're providing a range of teaching strategies for service units. We have added some information what it takes to be an expert teacher with references to the literature and some examples.

Katherine Seaton:

It draws both on the knowledge of professional, or expert teachers but also on the published literature. So it's not just people's opinions, it's actually backed up by research into maths education.

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Birgit Loch:

We hope that you enjoy this teaser, and that it will raise your curiosity and get you to enrol in the full unit, or at least work through the material on the AustMS website. We are looking forward to seeing you there hopefully.



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