UMTC: One Lecturer's Experience

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The Undergraduate Mathematics Teaching Conferences (UMTC) began in 1975 under the title "University Mathematics Teaching Conferences". They were intended to discuss the repercussions on University Mathematics courses of planned changes to the "A" level system and other developments in schools [1]. I attended for the first time in 1995. I enjoyed that conference so much that I have been back every year since then.

I had attended a number of conferences before that and so I suppose I was expecting to spend a rather relaxing few days letting the wise words of an assortment collection of celebrated thinkers wash over me. I was in for a shock. I was expected to work!

It is true that there are invited speakers at UMTC who supply a good deal of inspiration and information but most of the time is spent by the delegates themselves working in small groups on issues of current interest to those teaching mathematics at undergraduate level. The fruit of the efforts of each such group is a report. This report is refereed by other groups and is published, in its final form, in the conference proceedings.

Although UMTC involves hard work, it also includes an afternoon outing to a local site of interest followed by the conference dinner in the evening. For example in 1996 we visited Woolesthorpe Manor, the birthplace of Sir Isaac Newton, and in 1998 we went down a blue john mine near Castleton in Derbyshire.

The important question you are probably asking yourself now is this: "So UMTC provides those who attend it with a stimulating and enjoyable experience, but what difference does it make to their teaching?" I believe that it affects very positively the teaching of those who attend and I will relate some experiences of my own which lead me to this conclusion.

At the first UMTC I attended there were three topics considered by the working groups [2].

- New A level/ National Curriculum and Mathematical Structure – are they relevant?
- The Use of Spreadsheets in the Teaching of Mathematics.
- Induction for New Lecturers in Mathematics.

As you can see the range of topics was wide, with something to interest most of those involved in the teaching of undergraduate mathematics. I chose to join a group discussing the use of spreadsheets. The reason for this choice was that I had already used them in my teaching and was keen carry this work further.

In particular I had for some years been teaching Operational Research (OR) to BTEC/HND students. I had found that, although these students often had a weak mathematical background, they were able with a spreadsheet to construct useful mathematical models and to use these models to investigate problems in forecasting and simulation. Students, who previously would have got bogged down in technical mathematical detail, were able to bypass this stage and get to grips with essence of the problem. The feedback from the students was that, although they still considered OR to be a difficult subject, they felt they had gained real understanding.

I was not disappointed in my choice of group. The make up of the group was very varied, ranging from those who had no knowledge of spreadsheets to those who knew far more than I did. I learned many things not least the joys of the EXCEL utility SOLVER.

Following that conference I was inspired to publish an account of an example I had used in a module called "Communications and Modelling Concepts" delivered to level one students on a specialist mathematics degree [3]. This example concerned modelling the progress of a disease using a spreadsheet.

The ideas I learned at that conference still serve me well. This year a colleague and I taught a module on financial computation for the first time. This module was delivered to final year computing degree students with a very varied mathematics background. We have found spreadsheets of enormous help in enabling the students to carry out portfolio analysis. This is a topic which is normally assumed to require advanced calculus. Similarly option pricing using the Black-Scholes equation requires knowledge of the solution of second order partial differential equations which the students certainly did not have. By using the binomial model, which lends itself readily to spreadsheet implementation, it was possible for the students to gain an understanding of the principles underlying option pricing.

This then is one area in which UMTC has helped me do a better job as a lecturer, but there are certainly others such as computer aided learning, the evaluation of teaching innovation, the impact of technology on assessment and mathematics projects. Naturally this list reflects my own particular interest and experience but let me reassure you that there is something for everyone involved in teaching mathematics at these conferences. Above all the conference belongs to its delegates, so if there is an issue you feel requires further study and debate why not come and give a presentation about it this year?

Delegates to UMTC are drawn widely from across the entire spectrum of mathematics teaching in Higher Education. They range from those lecturing Pure Mathematics in the "old" Universities to those, like myself, who mainly carry out service teaching in the "new" Universities and include academics involved in the training of mathematics teachers. What they all have in common is a commitment to the teaching of mathematics and a desire to improve the way in which they do it. If, after reading this article, you think that UMTC might have something to offer you and your students I urge you to come along and find out.

References

[1] R P Burn, J Appleby & P Maher, *Teaching Undergraduate Mathematics*, Imperial College Press, 1997.

[2] *Proceedings of the 1995 Undergraduate Mathematics Teaching Conference,* Shell Centre for Mathematical Education, Nottingham University, Editor Frank I P Smith, University of St.Andrews.

[3] *Spreadsheet User,* Vol 3, No 1, May 1996.

For further information and on-line registration visit the Undergraduate Mathematics Teaching Conference web site at http://www.hull.ac.uk/mathskills/umtc/umtc00

CALL FOR CONFERENCE BRIEFS

The purpose of the Undergraduate Mathematics Teaching Conference is to respond to the needs of all those involved in the teaching of mathematics in Higher and Further Education. If there is a topic which you would like be discussed at next year's conference please email your suggestions to:

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