

Regional Meetings

There will be six regional meetings during November 2010 so that teachers and staff can discuss and refine both the Emerging Vision and the Action Plan.

For information about these regional meetings please contact:

Louise Sheryn

Email: l.sheryn@math.auckland.ac.nz

or visit the Community for Undergraduate Learning in Mathematical Sciences (CULMS) website:

www.math.auckland.ac.nz/CULMS



New Zealand Institute of
Mathematics & its Applications

Towards an Emerging Vision

Mathematical Sciences Education in Senior
Secondary and Undergraduate Years



www.math.auckland.ac.nz/CULMS



The Emerging Vision

In April 2010 The University of Auckland hosted the Envisioning the Future Conference. This was part of an NZIMA funded project designed to take a hard look at mathematics education for ages 16-20 years.

At the conference teachers and lecturers came together to discuss and envisage mathematical sciences education for these four critical years. General agreement was reached on four dimensions.

A Broad Vision

Mathematics should be seen as a subject of creativity and imagination, of doubt and fallibility, of struggle and persistence, and of excitement and beauty.

The content of mathematics is much wider than that currently represented in the school or undergraduate curriculum. We must develop a broad vision of the mathematical sciences. We need to encompass all manifestations of mathematics including its role in other disciplines.



A Contemporary Vision

We must reflect a contemporary vision of the mathematical sciences so that our students grasp the breadth of modern activity in their subject.

Students need an up-to-date picture of the nature of mathematical activity in their future careers with a modern perception of what a mathematician (or a mathematically competent professional) actually does.

An Active Vision

Our students' mathematical modes of behaving need to be explicitly developed: conjecturing, justifying, proving; persisting, problem analysis, problem-solving; creative thinking, pattern spotting, logical exploration; and rational thinking, abstraction and generalization.

Mathematical habits of mind, and the willingness to apply them in a variety of situations, are critical for future study and careers.

A Coherent Vision

We would like students to experience the mathematical sciences as a coherent field of enquiry that is visibly developing in sophistication at the same time as their ability to study and undertake mathematics is also becoming more mature and more independent.

The Action Plan

The Emerging Vision now must be elaborated into an Action Plan. We propose the following three areas of activity:

Developing a Professional Community

We must continue the communication between teachers and lecturers and develop a community that can provide support in both directions: school to university and vice versa.

Our educative task can be made significantly easier if we share resources and can discuss what and how we teach across levels.

Promotion of Mathematics

Mathematics must be perceived by students and the community as necessary, interesting and enhancing the intellectual life of the student. We must advertise this broad vision of mathematics and emphasise that this matters at university level.

Students, parents, teachers and advisors require updated information on what mathematical science requirements apply to different university and career pathways.

Aligning the Systemic Variables

We need to lobby and work towards a system of education that promotes rather than restricts the vision we hold.

We need to start from the vision of mathematical sciences we wish to project and, carefully and rationally, argue/move/influence the systems that surround us so that they support rather than oppose the vision.

For example we need to ensure the assessment and qualifications systems reward all aspects of mathematical understanding and behaviour.