



Dr Caroline Perkins
Equity and Structural Reform Branch
Higher Education Group
Department of Education, Employment and Workplace Relations
Canberra City ACT 2601

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Dear Dr Perkins

Re: Expansion of Commonwealth Scholarship Program

The Australian Mathematical Sciences Institute (AMSI) welcomes the expansion of this program and the recognition of mathematics as a priority area. We assume 'mathematics' includes statistics.

Access to mathematics education is an equity issue. Currently many young people in schools in remote, rural and hard to staff city schools are disadvantaged by the scarcity of well-qualified mathematics teachers. This impacts on both their personal and professional lives in many undesirable ways. Initiatives that have the potential to improve the supply of mathematics graduates for teaching, research, business and industry are very welcome.

We note that two additional categories of Commonwealth Scholarships are planned:

- National Priority Scholarships targeting undergraduate students enrolling in priority disciplines such as nursing, teaching, medicine, dentistry, allied health, mathematics, science and engineering; and
- National Accommodation Scholarships for students relocating interstate to study a specialist course not available near their home.

The issues as they relate to mathematics are discussed in the following pages.

Yours sincerely,

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Expansion of Commonwealth Scholarship Program

The Discussion paper focuses on four key issues surrounding the implementation of the new categories of Commonwealth Scholarships, namely:

1. Identification of the priority disciplines for the new National Priority Scholarships.
2. Definition of specialist courses for the new National Accommodation Scholarships.
3. Allocation of funding to higher education providers for the additional scholarship categories to ensure that the allocation of the new scholarships is matched to student demand.
4. Use of the existing Commonwealth Scholarships program management framework for the new scholarships sector.

We identify mathematics as a priority area and respond accordingly.

1. Identification of the priority disciplines

Data published in 2003 showed that only 0.4% of Australian graduates had a major in mathematics or statistics. The OECD average was 1%. The critical need for more graduates in the mathematical sciences is clearly documented in the National Review completed in 2006¹ and numerous reports on teacher supply.

2. Definition of specialist courses

We would define specialist courses as a 3-year major sequence in mathematics and/or statistics. The mathematical sciences community believes that such a sequence is sustainable and justified at every university. Currently this is not the case² and there is every indication that the situation is getting worse, not better³. This is making it increasingly difficult for students outside of the major capital cities to achieve these majors.

AMSI, in conjunction with the Australian Mathematical Society (AustMS) and the Statistical Society of Australia (SSAI), would be prepared to identify where appropriate 3-year sequences are being offered. AustMS has a process of course accreditation⁴ and SSAI has professional accreditation⁵.

Unless the situation in regard to appropriate courses outside of major capital cities can be resolved, we are firmly of the opinion the eligibility for National Accommodation Scholarships be expanded to include students who have to travel intrastate as well as interstate.

3. Allocation of additional scholarships to higher education providers

Student demand can presumably be measured through current enrolments for appropriate courses. Formula-based funding related to student load with a weighting for the number of undergraduates enrolled from low socio-economic status background, the number of Indigenous students and rural background should ensure that allocations match student demand.

Formula driven funding is more easily adjusted to student demand and need than

¹ <http://www.review.ms.unimelb.edu.au/>

² http://www.amsi.org.au/pdfs/Questionnaire_summary.pdf

³ <http://terrytao.wordpress.com/support-usq-maths/>

⁴ <http://www.austms.org.au/Accreditation+of+degree+programs>

⁵ <http://www.statsoc.org.au/Accreditation/WhatIs.htm>

competitive bidding which encourages universities to overstate their case. It is also less likely to lead to insufficient student demand and the need to re-allocate scholarships.

We also believe the process of allocating scholarships should be flexible enough to respond quickly to increased demand for specific discipline studies. For example, should a national awareness program concerning opportunities for careers in mathematics be instigated, this could increase demand in quite dramatic ways.

We think it is particularly important that students in rural and remote areas be encouraged to participate in mathematics courses as this may eventually assist with teacher shortfalls in those areas.

An aspect of this that is not covered in the Discussion paper, is what consideration is being given to students who may be able to complete one or two years of a degree at an institution but need to move to complete a major? Rural participation in higher education may be increased if students could stay at home for a year or two post secondary education.

The key to the success of the program appears to be flexibility linked to specific targets for participation of under-represented groups. Mathematics presents particular challenges in that access at the secondary level is also currently inequitable.

4. Program management framework

We make no comment on this except to reiterate the need to use processes that address rural inequity in access to 3-year degree programs in mathematics.

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