

# The African Institute for Mathematical Sciences



The African Institute for Mathematical Sciences (**AIMS**) is a new centre for postgraduate study in Cape Town, South Africa. Since opening in September 2003, AIMS has rapidly gained international recognition as a centre of excellence preparing students for research and teaching careers in the quantitative sciences.

AIMS recruits students from all over Africa for an intensive nine-month course taught by outstanding international lecturers, building research skills through exposure to cutting-edge topics. AIMS graduates proceed to advanced programmes in a wide range of scientific fields, and to careers in education, industry or government. They form a powerful network working together for African development.

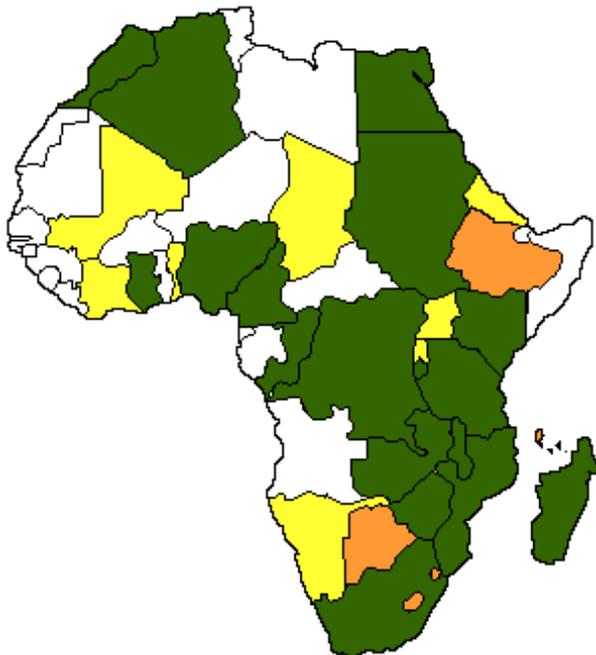
AIMS is a unique partnership between the three Universities in the Western Cape (UCT, Stellenbosch and UWC) and three European Universities (Cambridge, Oxford and Paris-Sud-XI).



[www.aims.ac.za](http://www.aims.ac.za)

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The AIMS facility combines lecture halls and computer labs, an excellent library and full accommodation. Lecturers and students live in, allowing for maximal interaction within an informal setting. Muizenberg, a suburb of Cape Town, is an area of outstanding natural beauty with many cultural and recreational facilities. AIMS is located just 50 meters from Muizenberg beach on False Bay, one of the finest in the Cape. AIMS is within easy reach of the three local Universities, and Cape Town international airport.



*AIMS graduation 2005*

In its first year, AIMS graduated 30 students from 11 countries, including 7 women. In June 2005, AIMS graduated 41 students from 16 countries including 13 women. In September 2005, AIMS will admit 52 students from 17 countries. AIMS currently receives over four applicants for each available place on its main postgraduate diploma course. AIMS also runs a special honours-level programme preparing South African students for entry into the main course.

- Applications received
- Students enrolled
- Students graduated

The AIMS course is innovative both in style and content. Lecturers engage with students and interact with them continually both within and outside of lectures, at all hours.



Lectures often break for discussion and work in small groups. Problem-solving sessions are held each day so that material covered in the lectures is quickly assimilated and put into practice. The excessively formal teaching style, all too common in many Universities, is avoided at AIMS.

We seek to create an atmosphere in which students and lecturers delight in the sharing of ideas and insights, and in which they learn from each other. Working with other stu-

dents from a wide range of backgrounds and cultures is enriching and rewarding. AIMS students quickly learn that science is a collaborative endeavour, where constant feedback from colleagues is both stimulating and productive.

Within the highly supportive, interactive atmosphere at AIMS, students learn at a rapid pace.

Many scientific fields today rely on a common core set of problem-solving skills: estimation, computation, approximation, modelling, data analysis and statistics. The *skills phase* of the AIMS course builds these abilities. The *review phase* allows students to apply them in some of the most exciting areas of science.



The final phase of the AIMS course involves the preparation of an essay under the supervision of an expert researcher. This year, over ninety essay topics were offered. Research initiated in these essays often develops into a Masters project after AIMS.



The overall goal of the AIMS course is to develop well-rounded scientists with a strong grounding in widely applicable skills. AIMS students have achieved remarkable success in obtaining excellent placements post-AIMS, at top African and international universities. Many take an active interest in African development.

AIMS places special emphasis on promoting the use of Free and Open Source Software. AIMS students learn to run Ubuntu Linux, to use the Python programming language, and various other mathematical software. In July 2005, AIMS hosted a four-week course in computational skills attended by 40 African researchers and academics, including several heads of department. AIMS alumni assisted as tutors, showing lecturers how to use Linux as a platform for scientific modelling. Some AIMS alumni tutored their previous supervisors and lecturers in the use of Free Software.

AIMS is funded by a wide range of international foundations, companies and organisations. Further details may be found on the AIMS web site. We welcome new partners.

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