MSc in Mathematical Sciences

Programme Code

58637 – 889(180)

Programme Description

This a one-year postgraduate programme leads to a structured MSc degree in Mathematical Sciences, which is formally accredited by the Universities of Cape Town, Stellenbosch, and the Western Cape. The programme is taught at the African Institute for Mathematical Sciences (AIMS) in association with the Universities of Cambridge, Oxford and Paris Sud XI. For more information, visit our website at www.aims.ac.za.

Specific Admission Requirements

In order to register for this programme, one of the following qualifications are required:

- A four-year Bachelor's degree (NQF level 8) in Mathematics, or any science or engineering subject with a significant Mathematics component;
- An Honours degree (NQF level 8) in Mathematics, or any science or engineering subject with a significant Mathematics component; or
- Any degree considered to be equivalent to the abovementioned degrees.

Your record should demonstrate a strong aptitude in Mathematics. A wide range of qualifications, equivalent to the above requirements, will be considered.

Applications and Selection

AIMS calls for online applications in October and December each year. The call is advertised via the AIMS mailing lists and through the partner universities. Applications that meet the admission requirements are assessed and students are selected by the AIMS Executive Team. Selected students are split equally between the Universities of Cape Town, Stellenbosch and the Western Cape for purposes of registration.

Programme Structure

The programme consists of two components that are grouped into two modules, namely Advanced Topics in the Mathematical Sciences and a research project in the Mathematical Sciences. The module Advanced Topics entails coursework that is divided into submodules. These submodules are generally three weeks long. They are self-contained and very demanding. Each submodule consists of 30 hours' contact time (10 hours per week). Additional tutorials and special lectures are often held in the evenings while students are completing their assignments.

Duration of Programme

The curriculum runs over three semesters and there are two intakes each year – in January and in August.

Programme Content

Advanced Topics in the Mathematical Sciences

First semester – Skills submodules (10 weeks):

Seven submodules of 30 hours each.

Second semester – Review submodules (6 three-week blocks):

Eleven submodules of 30 hours each.

Review submodules are fundamentally different from one another and a wide range of topics are offered, which are more flexibly designed. You are required to complete 11 submodules selected from the 18 review submodules offered, with a maximum of two chosen from any three-week block. Choices offered are balanced as far as possible with regard to focus on Mathematics, Physics, Statistics, Computer Science and other interdisciplinary topics, such as Biomathematics and Financial Mathematics. You choose from the list of submodules in consultation with the Academic Director, who ensures that your chosen modules complement each other. The review submodules provide an overview and in-depth study of topics from a major field of modern scientific work in the Mathematical Sciences and its applications.

Third semester – Research Project in Mathematical Sciences (8 weeks) (60 credits):

During the research project phase, you work on a research topic with a supervisor, usually from a South African university. It is not expected of you to do original work to achieve a passing grade, but the criterion for an outstanding research project is that it must constitute an original approach to the topic and may lead to publication, or form an outstanding introduction to the field that is useful to other students entering the field. During this time, communication skills and computer classes may continue, at the supervisor's discretion.

Compulsory Modules

Subject Number	Module Code	Credits	Module Name	Semester
11471	871	120	Advanced Topics in the Mathematical Sciences	Both
11472	871	60	Research Project in the Mathematical Sciences	Both

Assessment and Examination

- This programme is assessed continuously through written assignments, tutorials, short tests and presentations as set by the lecturers.
- You do an oral presentation on your written research project to a panel of examiners. This panel consists of the AIMS Director, the AIMS Academic Director, the supervisor, teaching assistant and external examiners.