The SAMSA Masamu Program

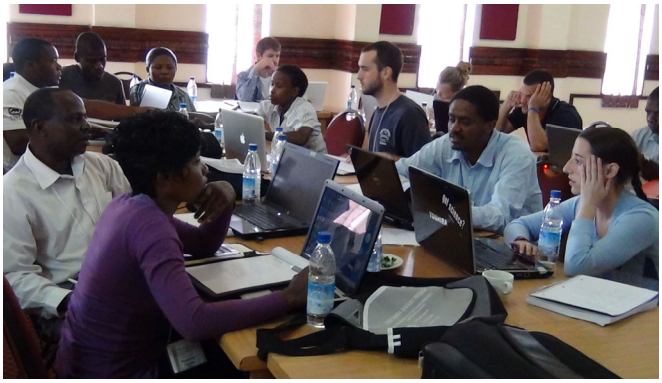
Southern Africa Mathematical Sciences Association

Sponsored by the National Science Foundation under Grant Award No. 2620609, the Masamu (masamu means mathematics in southern Africa region) Program (http://www.samsa-math.org) was established in 2010 with the primary goal of enhancing research in mathematical sciences within Southern Africa Mathematical Sciences Association (SAMSA) (www.samsa-math.org) institutions through promotion of international research collaboration. A key component of the Masamu Program is the Masamu Advanced Study Institute (MASI) and Workshop Series in mathematical sciences and related areas that provides a platform for such collaboration. Other activities include Virtual Colloquia Series, One Health Symposium, Research Workshops, Career Development Workshop, STEM Education Workshop, Department Heads and Chairs and Senior Research Scientists Workshop, Faculty Exchange and Study Abroad Programs. The target audiences of the Advanced Study Institute are graduate students, postdocs, and early career faculty (rank less than associate professor) while the workshops are open to students, faculty, and other researchers in the mathematical sciences and related areas.

In order to effectively use the MASI and Research Workshops, the Masamu Program has created a Collaborative Research Network consisting of 113 research faculty grouped into nine research groups. The primary objectives of the network are to drastically increase both the quantity and quality of research publications and the number of PhD degrees in both the US and Sub-Saharan Africa, and promote research collaboration between European, Sub-Saharan Africa, and US mathematicians and scientists. Participants in this Collaborative Research Network take advantage of the annual SAMSA conferences, Masamu Institutes, and Workshops to meet face to face, work on research problems, plan research activities for the following year, and present their research findings.

MASI and Research Workshops venues:

- 2011: Livingstone, Zambia; 44 participants from 11 countries
- 2012: Lilongwe, Malawi; 27 participants from 6 countries
- 2013: Stellenbosch, South Africa; 20 participants from 4 countries
- 2014: Victoria Falls, Zimbabwe; 42 participants from 8 countries
- 2015: Windhoek, Namibia; 36 participants from 7 countries
- 2016: Pretoria, South Africa; 36 participants from 7 countries
- 2017: Arusha, Tanzania; 50 participants from 8 countries
- 2018: Palapye, Botswana; 58 participants from 7 countries
- 2019: Blantyre, Malawi; 37 participants from 6 countries
- 2020: Held virtually via Zoom; 117 participants from 14 countries
- 2021: Held virtually via Zoom; 112 participants from 12 countries
- 2022: Maputo, Mozambique (hybrid with virtual participants); 84 participants from 11 countries (52 in person, 32 remote)
- 2023: Pretoria, South Africa; 57 participants from 7 countries
- 2024: Windhoek, Namibia; 70 participants from 8 countries (50 in person, 20 remote)
- 2025: Held virtually via Zoom; 167 participants from 16 countries



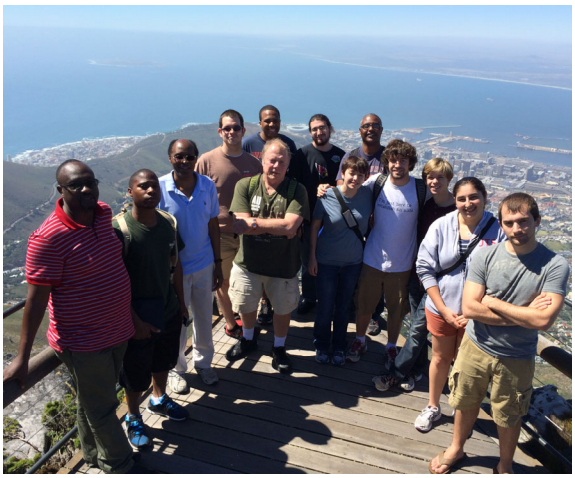
Inaugural 2011 MASI in Livingstone, Zambia

About SAMSA: The Southern Africa Mathematical Sciences Association (SAMSA) was established in 1981 to further the mathematical sciences in the southern Africa region (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia, and Zimbabwe) and beyond. Other countries currently participating from Sub-Saharan Africa include Ethiopia, Kenya, Madagascar, Nigeria, Rwanda, and Uganda.

About the NSF: The National Science Foundation (NSF) is an independent US federal agency created by Congress in 1950 "to promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense…" In many fields such as mathematics, computer science and the social sciences, NSF is the major source of federal backing for America's colleges and universities.

Research Groups:

Algebra and Geometry, Analysis and Topology, Graph Theory, Mathematical Biology, Bioststatistics, Disaster Risk & Resilience, Mathematics of Finance, Numerical Analysis, Health Economics

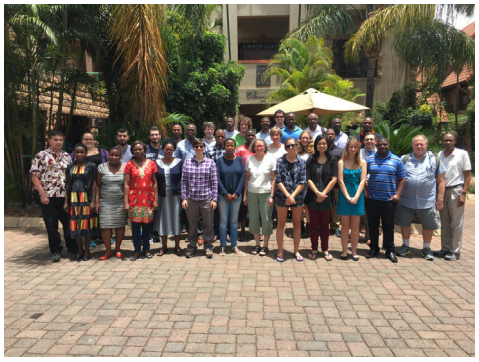


2013 MASI in Cape Town, South Africa

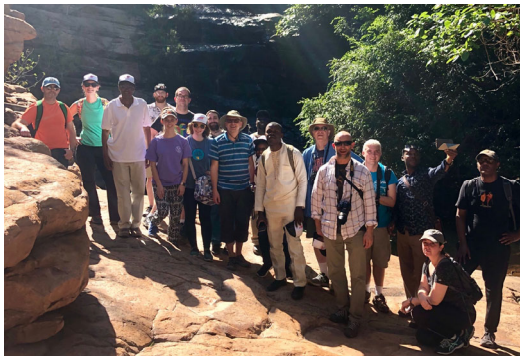
Program Outcomes:

- Participants have published research findings in journals such as Computational and Mathematical Methods in Medicine, Open Journal of Epidemiology, International Journal of Mathematics and Computational Methods in Science and Technology, and Journal of Biological Systems.
- Participating students have completed dissertations and theses leading to PhD and MS degrees in mathematics and mathematical biology, and have received appointments to fellowship, postdoc, and faculty positions both in the US and southern Africa.
- "I built new academic connections across the world. I also have been exposed to a wide area of academic fields in which I can base my future studies."
- "The research groups were great. Starting a problem from scratch and working through the details was great practice for what I can do in the future. It got me thinking of other ideas for projects and stirred my interest in alternative disease modeling, specifically ones here in Africa."

2017 MASI in Arusha, Tanzania



2016 MASI in Pretoria, South Africa



2018 MASI in Palapye, Botswana

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National Science Foundation
WHERE DISCOVERIES BEGIN