

# THE SAMSA MASAMU PROGRAM



Southern Africa Mathematical  
Sciences Association



**The Fifth Annual Masamu  
Advanced Study Institute (MASI) and  
Workshops in Mathematical Sciences**

**November 20<sup>th</sup> - 29<sup>th</sup>, 2015**

**University of Namibia  
Windhoek, Namibia**

# ACKNOWLEDGEMENTS

The Masamu program expresses our appreciation to the following sponsors:



The program wishes to extend its special thanks to the following individuals in the Auburn University Office of Diversity and Multicultural Affairs:

Sue Fuller, Executive Assistant/Business Manager

Keri Hesson, Executive Support Specialist

Brittany McCullough, Diversity Analyst, Planning & Assessment

Ashley Smith, Special Projects Administrator

# THE SAMSA MASAMU PROGRAM

The Masamu (masamu means mathematics in Southern Africa) Program was established in 2010 through a grant from the US National Science Foundation (NSF). The primary goal of the program is enhancing research in mathematical sciences within Southern Africa Mathematical Sciences Association (SAMSA) 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 that provides a platform for such collaboration. Other planned activities include Research Workshop, Career Development Workshop, Department Heads and Chairs and Senior Research Scientists Workshop, Colloquia and Webinar Series, and AfricaMath. The target audiences of the MASI are graduate and undergraduate students and early career faculty (rank less than associate professor) while the workshops are open to students, faculty, and other researchers in the mathematical sciences.

The Masamu Advanced Study Institute (MASI) and Workshop Series in Mathematical Sciences program is a collaborative effort between African, European, Canadian, and US mathematicians. This program has three main goals: (1) Strengthen the US and Southern African human infrastructure in mathematical sciences research; (2) Drastically increase and sustain research collaboration between US, European, and Southern African mathematicians; and (3) Improve collaboration between US, European and Southern African colleges and universities.

In order to effectively use the MASI and Research Workshops, the Masamu Program has created a Collaborative Research Network consisting of 55 research faculty (26 Sub-Saharan Africa, 21 US, 2 Canada, and 6 Europe) forming 4 research teams in Pure Mathematics (Algebra and Geometry, Analysis and Topology, Coding Theory and Information Theory, and Graph Theory) and 4 research teams in Applied Mathematics (Epidemiological Modeling, Numerical Approximation of Solutions of Partial Differential Equations, Mathematics of Finance, and Statistics). Each research team has at least 4 faculty and at least 4 undergraduate and graduate students. The primary objectives of the network are to drastically increase both the quantity and quality of research publications and the number of PhD degrees, especially among women and underrepresented minorities, in each of the areas represented by the eight research teams in both the US and Sub-Saharan Africa, and promote research collaboration between European, Sub-Saharan Africa, and US mathematicians. 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.

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**About SAMSA:** The Southern Africa Mathematical Sciences Association (SAMSA) was established in 1981 to further the mathematical sciences in the Southern African region (Angola, Botswana, Lesotho, Malawi, Mozambique, Namibia, South Africa, Swaziland, Tanzania, Zambia and Zimbabwe) and beyond.

**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.

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**Institute and Workshop inquiries should be directed to:**

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United States - Dr. Ash Abebe, [abebeas@auburn.edu](mailto:abebeas@auburn.edu)

**General inquiries about the Masamu Program should be directed to:**







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**2015 ADVANCED STUDY INSTITUTE AND RESEARCH WORKSHOP PROGRAM  
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**2015 ADVANCED STUDY INSTITUTE AND RESEARCH WORKSHOP PROGRAM  
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	<p><b>Dr. Edward Lungu</b> Professor <a href="mailto:lunguliz@gmail.com">lunguliz@gmail.com</a></p>	<p><b>Botswana International University of Science &amp; Technology</b> Mathematical Biology, Stochastic Analysis</p>
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## 2015 ADVANCED STUDY INSTITUTE AND RESEARCH WORKSHOP PROGRAM PARTICIPANTS

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Hannah Correia	Auburn University	Graduate Student	Statistics
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Patrick Sawerengera	University of Malawi	Graduate Student	Graph Theory



**2015 MASAMU ADVANCED STUDY INSTITUTE (MASI) AND  
RESEARCH WORKSHOP**

**FRIDAY, NOVEMBER 20 - SUNDAY, NOVEMBER 29, 2015**

**DAILY SCHEDULE**

**MASI AGENDA**

**Friday, November 20 – Friday, November 27**

**Day 1: Friday, November 20 - Hilton Windhoek Hotel**

02:00 – 06:00 Registration  
04:00 – 06:00 Research Team Leaders Planning Sessions  
06:00 Dinner and Networking

**Day 2: Saturday, November 21 - Hilton Windhoek Hotel**

09:00 – 09:20 Welcome and Introductions  
09:20 – 10:20 Overview of Program, Logistics, Expectations  
10:20 – 10:40 Break  
10:40 – 12:00 Research Group Problem Sessions  
12:00 – 01:30 Lunch  
01:30 – 02:50 Research Group Problem Sessions  
02:50 – 03:10 Break  
03:10 – 04:30 Research Group Problem Sessions  
04:30 – 06:00 Recap  
06:00 Dinner and Networking

**Day 3: Sunday, November 22 - Hilton Windhoek Hotel**

09:00 – 10:20 Research Group Problem Sessions  
10:20 – 10:40 Break  
10:40 – 12:00 Research Group Problem Sessions  
12:00 – 01:30 Lunch  
01:30 – 02:50 Research Group Problem Sessions  
02:50 – 03:10 Break  
03:10 – 04:30 Research Group Problem Sessions  
04:30 – 06:00 Recap  
06:00 Dinner  
07:00 SAMSA Conference Cocktail at Safari Hotel

**2015 MASAMU ADVANCED STUDY INSTITUTE (MASI) AND  
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**FRIDAY, NOVEMBER 20 - SUNDAY, NOVEMBER 29, 2015**

**DAILY SCHEDULE**

**Day 4: Monday, November 23 - University of Namibia**

09:00 – 02:00 SAMSAM Conference\*/Lunch  
02:10 – 03:30 Research Group Problem Sessions  
03:30 – 03:50 Break  
03:50 – 05:10 Research Group Problem Sessions  
05:10 – 05:40 Recap  
06:00 Dinner and Networking

**Day 5: Tuesday, November 24 - University of Namibia**

09:00 – 02:00 SAMSAM Conference\*/Lunch  
02:10 – 03:30 Research Group Problem Sessions  
03:30 – 03:50 Break  
03:50 – 05:10 Research Group Problem Sessions  
05:10 – 05:40 Recap  
06:00 Dinner and Networking

**Day 6: Wednesday, November 25 - University of Namibia**

09:00 – 02:00 SAMSAM Conference\*/Lunch  
02:10 – 03:30 Research Group Problem Sessions  
03:30 – 03:50 Break  
03:50 – 05:10 Research Group Problem Sessions  
05:10 – 05:40 Recap  
06:00 Dinner and Networking

**Day 7: Thursday, November 26 - University of Namibia**

09:00 – 10:20 Research Group Problem Sessions/SAMSAM Conference\*  
10:20 – 10:40 Break  
10:40 – 01:00 Research Group Problem Sessions/SAMSAM Conference\*  
01:00 – 02:00 Lunch Break  
02:00 – 05:00 Game Drive – Heja Lodge  
06:00 Conference Dinner – Heja Lodge

**Day 8: Friday, November 27 - University of Namibia**

09:00 – 02:00 SAMSAM Conference\*/Lunch

*\*MASI research groups may meet at this time depending on the SAMSAM conference agenda.*



**2015 MASAMU ADVANCED STUDY INSTITUTE (MASI) AND  
RESEARCH WORKSHOP  
FRIDAY, NOVEMBER 20 - SUNDAY, NOVEMBER 29, 2015  
DAILY SCHEDULE**

**MASAMU RESEARCH WORKSHOP AGENDA**

**Friday, November 27 – Sunday, November 29**

**Day 8: Friday, November 27 - University of Namibia**

02:10 – 03:30 Research Presentation and Discussion  
03:30 – 03:50 Break  
03:50 – 05:10 Research Presentation and Discussion  
05:10 – 05:40 Recap  
06:00 Dinner and Networking

**Day 9: Saturday, November 28 - Hilton Windhoek Hotel**

09:00 – 12:00 Working Groups Future Research Activities Planning Sessions  
12:00 – 01:00 Lunch on your own  
01:00 - 06:00 Break  
06:00 Dinner on your own

**Day 10: Sunday, November 29 - Hilton Windhoek Hotel**

08:30 – 10:00 Presentation of Research Progress Made and Future Research Activities  
10:00 – 11:30 Networking/Hotel Check Out  
11:30 – 12:30 Lunch and Closing Remarks  
12:30 Depart for Windhoek Airport  
02:55 Depart Namibia

# MASAMU PROGRAM STEERING COMMITTEE

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