POSTGRADUATE RESEARCH SYMPOSIUM

Application of Statistics in Industry and Health Sectors: Real-World Applications and Beyond

21 – 22 February 2025

Batter Boys, Montana, Pretoria

PROGRAMME

Dear Delegate,

Statistics play a crucial role in the development of health policies and economy of South Africa and the broader African continent. The integration and application of statistical information are vital for monitoring health and market performance, as well as setting and achieving development goals, such as reducing infant, child, and maternal mortality rates, and forecasting GDP and population growth rates. This field is also essential for formulating evidence-based health policies. The synergy between Statistics, Industry, and Health education is fundamental to the growth and success of South Africa and Africa.

Effective modeling and data analysis is a key step in addressing these challenges. Throughout the 20th century, modeling has been instrumental in analyzing various physical applications. As we move further into the 21st century, biomedical applications are becoming more prominent, and modeling techniques are increasingly used to understand biological and medical processes. Mathematical modeling has proven successful in predicting disease development, infection growth, and the socio-economic impact of diseases. However, there are still many opportunities to further exploit these techniques in various fields.

The Postgraduate Research Symposium (PRS) 2025 offers a platform for researchers in the Biosciences and Health Sciences (both human and animal) and Mathematical Sciences to collaborate and conduct impactful research. We believe that PRS 2025 will provide a valuable opportunity for participants to engage in meaningful discussions, exchange insights, and form partnerships that drive innovation. By sharing expertise and ideas, we aim to inspire impactful research and foster collaborations between Science, Health, and Industry through modeling techniques that address Africa's unique economic and health challenges, ultimately improving outcomes across the continent. Thank you for supporting this event and for your commitment to advancing the application of Statistics in Health and Industry.

LOCAL ORGANIZING COMMITTEE

Dr. Oratilwe Mokoena

Dr. Sam Ntuli

Dr. Tshepo Ramarumo

Ms. Ntumeleng Nkosi

INVITED SPEAKERS

Prof Carlos Coelho (NOVA School of Science and Technology - NOVA University of Lisbon, Portugal)

Carlos A. Coelho is a Full Professor of Statistics at the Mathematics Department of NOVA School of Science and Technology of NOVA University of Lisbon. He holds a Ph.D. in Biostatistics by The University of Michigan, Ann Arbor, MI, U.S.A., where he was a Fulbrighter. His main area of research is Multivariate Analysis, namely the development of likelihood ratio tests for elaborate covariance structures and for MANOVA models, also with elaborate covariance structures, together with the study of the exact distribution and the development of near-exact distributions for the associated test statistics. Related with this area, other areas of interest are Mathematical Statistics and Distribution Theory, as well as Estimation, Univariate and Multivariate Linear, Generalized Linear and Mixed Models. More recently, he also got interested in tests for high-dimensionality and the application of Multivariate Analysis techniques to Statistical Disclosure Control problems. Carlos A. Coelho has served in the Editorial Boards of Discussiones Mathematicae—Probability and Statistics, REVSTAT-Statistical Journal, the Journal of Interdisciplinary Mathematics and the Journal of Applied Statistics and currently serves in the Editorial Boards of the Journal of Statistical Theory and Practice, the American Journal of Mathematical and Management Sciences. He is also Associate Editor of the Springer Book series "Emerging Topics in Statistics and Biostatistics" and a member of the International Council of the "Business World" Library of the Tsenov Academy of Economics (Svishtov, Bulgaria). Currently, Carlos A. Coelho also serves as President of Fulbrighters Portugal, the Portuguese Fulbright Alumni Association.

Dr. Samanta Tresha Lalla-Edward (Director: Research Strategy, Ezintsha Research Centre, Johannesburg, South Africa)

Dr. Samanta Tresha Lalla-Edward is a public health researcher and monitoring and evaluation specialist with over 17years of experience in HIV prevention and treatment research and implementation. She currently serves as the Director of Research Strategy at Ezintsha, a division of the Wits Health Consortium at the University of the Witwatersrand in Johannesburg, South Africa. Dr. Lalla-Edward holds a Master's Degree in Social Behavioural Studies in HIV/AIDS and earned her PhD in 2018. Her expertise spans various areas, including HIV prevention technologies, cardiovascular disease, respiratory health, drug optimization, mHealth/digital health, diagnostics, high-risk populations, and road transport health. She has led the monitoring and evaluation of nationally implemented PEPFAR programs and has been involved in large-scale research projects. Passionate about strengthening research capacity, particularly for postgraduate students, Dr. Lalla-Edward collaborates with investigators across Africa and globally to plan and operationalize clinical and healthcare research. She is committed to developing local staff in research and scientific writing capabilities and currently chairs the NHLBI's SiMPLE Alliance capacity building sub-committee. Dr. Lalla-Edward has authored over 60 peer-reviewed publications in local and international journals, has mentored or supervised 20 Master's students, and is currently supervising four PhD candidates. She also serves as a mentor, reviewer, and track chair for local and international HIV conferences.

Dr. Samantha Govender (Head of Department, Speech-Language Pathology and Audiology, South Africa)

Biosketch: Samantha Govender is the current Head of Department of the Speech-Language Pathology and Audiology Department at Sefako Makgatho Health Sciences University. She holds a PhD in telehealth (public health) from the University of KwaZulu-Natal, Durban. Dr Govender is currently researching in the area of digital healthcare and its application within under-serviced communities. In addition, she is currently leading a multidisciplinary team at SMU, working on the establishment of a Digital healthcare training institute as well as on the development of digitally enhanced curricula for Health Sciences programs at SMU. Her current focus is on community engagement and its relevance to healthcare systems. She currently supervises a number of Postgraduate students within the niche area of digital healthcare. She serves on various institutional and professional committees. She currently has 19 peer-reviewed publications in both local and international journals and is a y-rated NRF researcher. She has also published book chapters and has presented locally and internationally at various conferences. She is also a fellow of the Future Professors program and a fellow of the Teaching Advancement at University (TAU) program.

Prof Maia Lesosky (National Heart and Lung Institute, Imperial College London, United Kingdom)

I am a professor of Medical Statistics in the Genomic and Environmental Health section of the National Heart and Lung Institute. My main interests are related to methodological aspects of longitudinal / repeated measures models, particularly with binary or count outcomes. I work across all study designs and focus on respiratory and lung health.

Time	Presenter	Topic
21st February 2025 Friday		
8:00 – 9:00	*Welcome and registration*	
9:00 – 9:05	*Dr. Oratilwe Mokoena*	*Opening speech*
9:05 – 9:10	*Prof. Solly Seeletse*	*Head of Department*
9:10 – 9:40	*Dr Bongai Khathide (Madibeng Research Centre, South Africa)*	
9:40 – 10:35	*Prof Carlos Coelho (NOVA School of Science and Technology - NOVA University of Lisbon, Portugal)*	
	Tea Break	
10:55 – 11:20	*Mr. Fhulufhelo Madzunye (Old Mutual)*	*Importance of statistics in Banking*
11:20 – 12:00	*Prof Vanessa Moodley (Haematology, Sefako Makgatho University, South Africa)*	
	Launch Break	
13:00 – 13:25	*Presenter*	*PhD presentation*
13:25 – 13:40	*Ofentse Vilakazi*	*Honours presentation*
13:40 – 14:05	*Donald Bokaba*	*Importance of Statistics in Industry*
14:20 – 15:10	*Prof Tanja Verster (Centre for Business Mathematics and Informatics, NWU Portch, South Africa)*	
15:15 – 15:35	*Esther Tshimanga*	*MSc Presentation*
15:00 – 15:25	*Sandile Buthelezi*	*PhD presentation*
15:25 – 15:35	*Dr. Oratilwe Mokoena*	*Closing Remark*
22nd February 2025 Saturday		
8:00 – 8:05	*Welcome*	*Dr. Oratilwe Mokoena*
8:05 – 8:10	*Dr. OP Mokoena*	*Introduction of Health Sector Experts*
8:10 – 9:00	*Dr. Samantha Govender (Head of Department, Speech-Language Pathology and Audiology, South Africa)*	
9:00 – 9:25	*Vukosi Mashele*	*Industry expert*
9:25 – 10:20	*Dr. Samanta Tresha Lalla-Edward (Director: Research Strategy, Ezintsha Research Centre, Johannesburg, South Africa)*	
10:20 – 11:10	*Mr Donald Tshabalala (Department of Statistical Sciences SMU, South Africa)*	
10:45 – 11:10	*Nande Nokepeyi*	*Life after Honours*
11:10 – 12:00	*Tea Break*	
11:00 – 11:25	*Abel Letoaba (Manager: Collections Strategy – Lending, African Bank)*	*What can Statistics do for you in Industry?*
12:35 – 13:25	*Prof Maia Lesosky (National Heart and Lung Institute, Imperial College London, United Kingdom)*	
	Lunch Break	
14:40 – 15:30	*Dr Lebogang Sesale (Senior Lecturer, UNISA, South Africa)*	
15:30 – 15:45	*Thandeka Mahlangu*	*Why is Statistics Important?*
15:45 – 16:00	*Tebogo Mitane (Uppsala University, Uppsala, Swedene)*	*How important is statistics*
16:00 – 16:15	*Tetelo Masemola*	*Why Did you choose Statistics?*
16:00 – 16:10	*Closing Remarks*	*Dr. Oratilwe Mokoena*
	Departure	