

Session details (session title, presenter detail and talk title)

Note: A 'Y' at the end of a presentation title indicates that it forms part of the 'Young statistician stream'. A 'P' at the end of a presentation title indicates that the presentation is from a paper submitted in the SASA 2011 Peer-reviewed stream (ISBN: 978-1-920508-10-4).

Session 1A: 12:00-13:10 (Tuesday 1 November 2011)

Note: Names in ***Bold-Italics*** indicate the Chair-of-session, unless otherwise indicated.

Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: Young Statistician Stream (Chairperson: Delia North)

- 12:00-12:20 Gian-Mario Afeltra *A comparison of stochastic reserving techniques: A GLM approach*. SASA 2011 SAS Honours Competition winner. **Y**
- 12:25-12:45 Tarylee Reddy *Modelling HIV progression using multistate Markov models*. SASA 2011 Statistics SA Post-graduate competition winner. **Y, P**
- 12:50-13:10 Johané Nienkemper *The ranking of preferable positions for an a cappella group considering feasible factors*. **Y**

2: Business Stream: Money and Finance

- 12:00-12:20 Mampho Modise *Out-of-sample equity premium predictability in South Africa: A Bayesian approach*.
- 12:25-12:45 Faaïqa Hartley *The role of asset prices in forecasting inflation and output in South Africa*.
- 12:50-13:10 **Rangan Gupta** *Could we have predicted the recent downturn in US GDP?*

3: Factor Models and Common Principal Components

- 12:00-12:20 Simon Monyai *Application of factor analysis to the 2009 general household survey South Africa*. **Y**
- 12:25-12:45 Theo Pepler *On the application of common principal components in biplots*.
- 12:50-13:10 **Danie Uys** *Using common principal components to estimate covariance matrices with different covariance structures*

4: Classification Problems

- 12:00-12:20 Mornë Lamont *The nearest hypersphere classifier*.
- 12:25-12:45 Gaëtan M Kabera *An analysis of point judgement matrices in the analytic hierarchy process using the Kullback-Leibler distance*.
- 12:50-13:10 **Inger Fabris-Rotelli** *Lulu, images and noise removal*. **Y**

5: Bayesian - Theory

- 12:00-12:20 Elzanne du Plessis *A comparison between Bayesian and generalized variable methods for interval estimation of the common mean of several normal populations*. **Y, P**
- 12:25-12:45 Lizanne Raubenheimer *Bayesian estimation of the ratio and product of two Poisson rates*. **P**
- 12:50-13:10 **Abrie van der Merwe** *An exact frequentist matching fiducial / Bayesian confidence interval for the Pearson correlation coefficient*.

6: Non-parametric

- 12:00-12:20 **Marien Graham** *Nonparametric exponentially weighted moving average control charts based on the sign and signed-rank statistics*.
- 12:25-12:45 Franz Ruch *Towards a measure of core inflation using singular spectrum analysis*.
- 12:50-13:10 Francois van Graan *A bandwidth selector for the kernel distribution function estimator*.

Session details

Session 1B: 14:50-16:00 (Tuesday 1 November 2011)

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Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: Simulation Studies

- 14:50-15:10 Sean van der Merwe *The Dirichlet type 2 distribution with application.*
15:15-15:35 Henri Moolman *A simulation study of the sampling distribution of the mean.*
15:40-16:00 **Michael von Maltitz** *Extending the reach of sequential regression multiple imputation.*

2: Business Stream: Financial Volatility

- 14:50-15:10 Mutairu Akintunde *Examination of GARCH model adequacy for foreign exchange rate forecasting.* **Y**
15:15-15:35 Rhoda Makhwiting *Modelling volatility and financial market risk of shares on the Johannesburg stock exchange.* **Y**
15:40-16:00 **Esti van Wyk de Vries** *Multi-period portfolio choice and hedging demands for stocks and bonds: Evidence from South Africa.*

3: Applied Statistics - Environment (Southern Ocean Carbon Climate)

- 14:50-15:10 Wesley Pretorius *Application of nonparametric approach to analyze ΔpCO_2 data.* **Y, P**
15:15-15:35 M van der Walt *Comparison of random and d-optimal sampling in least squares fitting of pCO_2 data.* **P**
15:40-16:00 **Sonali Das** *Locating possible ΔpCO_2 provinces in the Southern Ocean via the Bayesian change point detection approach.*

4: Modelling

- 14:50-15:10 Jacques Oosthuizen *Small area estimation and its application in South Africa.*
15:15-15:35 Philip Serumaga-Zake *A statistical analysis of the rural-urban migration problem.* **P**
15:40-16:00 **Heinrich Bohlman** *Dynamic CGE modelling for South Africa.*

5: Methods

- 14:50-15:10 Thompson Ojo *Statistical forecasting of discontinuous trends using scenario analysis.*
15:15-15:35 Byron Wilson *Sensitivity of sector allocations to the Black-Litterman model parameters.* **Y**
15:40-16:00 **Arulsivanathan Naidoo** *GIS mapping of census data.*

6: Business Stream: Housing

- 14:50-15:10 Calven van der Byl *Modelling residential real estate transactions in the Nelson Mandela Metropolitan Area.* **Y**
15:15-15:35 Beatrice Simo Kengne *House prices and economic growth in South Africa: Evidence from provincial level data.*
15:40-16:00 **Abdul Mutalib Beksin** *Evidence of serial correlation and mean reversion entrenched in the short-range variations of house prices in Malaysia.*

Session 2A: 08:30-10:30 (Wednesday 2 November 2011)**Note:** Names in ***Bold-Italics*** indicate the Chair-of-session, unless otherwise indicated.*Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal***1: Health - Infectious Disease Modelling**

- 08:30-08:50 Samuel Manda *Investigating ecological associations between antenatal HIV and syphilis in South Africa using bivariate spatial models.*
- 08:55-09:15 Ria Laubsher *Predicting outcome in children with tuberculous meningitis: Comparison of different scoring systems.*
- 09:20-09:40 Khangelani Zuma *Estimating trend in new HIV infections in South Africa using three national HIV surveys.*
- 09:45-10:05 Lesego Gabaitiri *Estimating incidence under linear incidence density function.*
- 10:10-10:30 **Henry Mwambi** *Modelling longitudinally measured HIV outcome biomarkers including the role of immunogenetic information on disease progression.*

2: Theoretical Statistics - Methods for Several Variables

- 08:30-08:50 Nicolene Thiebaut *Statistical properties of forward selection regression estimators.* **Y**
- 08:55-09:15 Jacobus van den Berg *A bivariate generalisation of the Gamma distribution.*
- 09:20-09:40 Rene Ehlers *Bimatrix variate distributions of Wishart ratios with application.*
- 09:45-10:05 Rianne Jacobs *Bivariate Kummer beta distributions: Product method*
- 10:10-10:30 **Biman Chakraborty** *On a multivariate scale-scale plot.*

3: Business Stream: Applied Statistics - Prediction and Forecasting

- 08:30-08:50 Delson Chikobvu *Predicting rainfall and drought using the southern oscillation index in drought-prone Zimbabwe.*
- 08:55-09:15 Patrick Kobue *Forecasting crime statistics.* **Y**
- 09:20-09:40 Abel Motsomi *Aggregation and optimization of energy demand forecasts.* **Y**
- 09:45-10:05 Promise Molale *Fingerprint prediction using classifier ensembles.* **P**
- 10:10-10:30 **Chris Elphinstone** *Forecasting the number of prosecution resources.*

4: Applied Statistics - Health

- 08:30-08:50 Darryn Williams *Biplots for three-mode data: An application to HIV immune response data.* **Y**
- 08:55-09:15 Ronel Sewpaul *Estimation and analysis of measures of disease for HIV infection in childbearing women using serial seroprevalence data.* **Y**
- 09:20-09:40 Thomas Achia *Generalized linear spatial modeling of HIV in Kenya.*
- 09:45-10:05 Robert Mutwiri *Geospatial modelling and mapping of infant mortality.* **Y**
- 10:10-10:30 **Keumhee Chough Carriere** *Comparative Investigation of Clinical Trials Designs.*

5: Applied Statistics - Case studies

- 08:30-08:50 Lara Dalmeyer *Dynamic structural time series models for 18 years of daily fish catch data.* **Y**
- 08:55-09:15 **Birgit Erni** *Using structural time series models to estimate trends in bird populations from semi-annual counts.*
- 09:20-09:40 Wallina Oosthuizen *Mixed model analysis of academic student records in the presence of substantial amounts of missing data.*
- 09:45-10:05 Muhammad Bilal *Modelling maize production in Pakistan.* **Y**
- 10:10-10:30 Puneet Verma *Inter correlation between soil properties and growth of *azadirachta indica* in various types of plantations of Jodhpur region (Rajasthan, India).* **Y**

6: Distribution theory and Estimation

- 08:30-08:50 Tinashe Chatora *Detection and down-weighting of outliers in Poisson regression using a variance shift outlier model.* **Y**
- 08:55-09:15 **James Allison** *On the joint distribution of the ranks associated with bivariate data with application to the empirical copula estimator.*
- 09:20-09:40 Ken Nyongesa *Pool-testing strategy with retesting for estimating.* **Y**
- 09:45-10:05 Ruaan van Zyl *Least squares estimation based on order statistics in some location-scale families.* **Y**
- 10:10-10:30 Robert Schall *Comparative evaluation of ectoparasiticide efficacy.*

Session details

Session 2B: 11:50-13:00 (Wednesday 2 November 2011)

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Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: Estimation, Outliers

- 11:50-12:10 Şükrü Acitaş *An alternative initial estimate for the m-estimation of the location parameter.*
- 12:15-12:35 Taiwo Lasisi *The specification of periodic correlation structures in the presence of outliers.*
- 12:40-13:00 ***Ilhan Usta*** *Partially adaptive estimation of the shape parameter of the Weibull distribution.*

2: Co-integration and Causality

- 11:50-12:10 Rajab Ssekuma *Testing for cointegration in the United Kingdom's consumption, income and wealth series.* **Y**
- 12:15-12:35 Alister Tlale *Understanding causal relations of some economic variables in Botswana.* **Y**
- 12:40-13:00 ***Pavel Petrov*** *Model selection in cointegration analysis: An application to global all share indices.* **Y**

3: Method and Application

- 11:50-12:10 ***Elizabeth Girmay*** *The relationship between the tail probability and a parameter as a guideline for choosing a threshold.*
- 12:15-12:35 Chenedzai Mafini *Factors driving the attrition of aircraft technicians at the air force of Zimbabwe (a case analysis).*
- 12:40-13:00 Palanisamy Thangavel *Nonparametric regression curve estimation using generalized coiflets.*

4: Business Stream: Finance

- 11:50-12:10 Farai Mlambo *Measuring of association of economic indicators.* **Y**
- 12:15-12:35 ***Gregg Webster*** *Bayesian logistic regression for credit scoring.* **Y**
- 12:40-13:00 Woundjiague Apollonaire *Pricing models for microfinance enterprises.* **Y**

5: Education

- 11:50-12:10 Anna Dorothea Corbett *Shaping students' approach to learning through assessment.*
- 12:15-12:35 ***Elizabeth Basson*** *Using a classroom response system as an interactive teaching tool*
- 12:40-13:00 Mike Murray *A study of student performance in the science faculty at the University of Kwazulu-Natal.* **P**

6: Applied Statistics

- 11:50-12:10 Stefan Britz *Application of the Hungarian algorithm in baseball team selection and assignment.* **Y**
- 12:15-12:35 ***Jeremy Baxter*** *Protein secondary structure prediction: An application of Bayesian adaptive regression trees.*
- 12:40-13:00 Gurmanik Kaur *Effect of crossing legs on BP of normotensive female post-graduate university students.*

Session 2C: 15:05-16:40 (Wednesday 2 November 2011)

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Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: Education

- 15:05-15:25 Delia North *Open Day: An opportunity to “sell statistics” to school children.*
 (with James Allison Howard Gabriels and Gary Sharp)
- 15:30-15:50 Yoko Chhana *Reflecting on learning styles of students and the use of technology in lectures.*
- 15:55-16:15 Gary Sharp *Publishing your research: Hints for new young and developing researchers.*
- 16:20-16:40 ***Delia North*** *Maths4stats: Setting up a network of workshops to empower in-service teachers.*

2: Sampling

- 15:05-15:25 ***Ariane Neethling*** *The use of Laeken indicators to estimate poverty and inequality in South Africa.*
- 15:30-15:50 Retha Luus *Bootstrap confidence intervals for Laeken indicators under complex sampling.*
- 15:55-16:15 Onkabetse Mabikwa *The performance of variance estimation methods using complex survey design: A case study based on HIES survey data.* **Y**
- 16:20-16:40 Constantine Frangos *Stochastic analysis of random sampling of signals.* **P**

3: Applied Statistics - Practical Challenges

- 15:05-15:25 Ros Hirschowitz *Integrating monitoring and evaluation into the normal workings of an NGO: A grassroots approach.*
- 15:30-15:50 ***Howard Gabriels*** *The changing demand for data in the public sector.*
- 15:55-16:15 Hermi Boraine *Role of the national statistical system in achieving the priority outcomes of government.*
- 16:20-16:40 S C Jhansi *Capacity building in agricultural and rural statistical development.*

4: Applied Statistics - Spatial Models

- 15:05-15:25 Lwando Kondlo *Small area prediction of disease prevalence using spatially dependent methods.*
- 15:30-15:50 Xolani Dastile *Improved tree species discrimination at leaf level with hyperspectral data combining binary classifiers.* **Y**
- 15:55-16:15 Mzabalazo Ngwenya *The model-based approach to geostatistical analysis: A case study of micro-nutrient content in the soils of the Witwatersrand area.*
- 16:20-16:40 ***Nontembeko Dudeni-Thlone*** *Modelling grass nutrients using remote sensing and geostatistics tools.* **P**

5: Applied Statistics - Health

- 15:05-15:25 Franck Adekambi *Health care insurance pricing when the healthy and sick periods form an alternating renewal process with stochastic force of interest.*
- 15:30-15:50 Michael Mncedisi *Use of survival analysis curves to assess complaints in medical schemes.*
- 15:55-16:15 Lucy Campbell *Determining the effect of ART on mortality in the presence of time-dependent confounding and censoring using marginal structural models.*
- 16:20-16:40 ***Zoran Antonijevic*** *Optimizing drug development: an application to diabetes.*

6: Analysis of Association

- 15:05-15:25 Ope Oyedele *The covariance biplot to reveal relationships between different sets of variables.* **Y**
- 15:30-15:50 Keamogetse Setlhare *The analysis of high dimensional contingency table with interactions.*
- 15:55-16:15 Lerato Masemola *Determination of causal effect in observational studies.* **Y**
- 16:20-16:40 ***Lizelle Fletcher*** *Canonical correlations and classification and regression trees to establish associations.*

Session details

Session 3A: 8:30-10:30 (Thursday 3 November 2011)

Note: Names in ***Bold-Italics*** indicate the Chair-of-session, unless otherwise indicated.

Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: ICCSSA - Industry

- 08:30-08:50 Linda Haines *Designs for mixture experiments.*
08:55-09:15 Sugnet Lubbe *Canonical analysis of distance in the mining industry.*
09:20-09:40 Paul Fatti *Random sampling: An essential tool for the applied statistician.*
09:45-10:05 **Roelof Coetzer** *Challenges in quantifying correlations and interrelationships for complex chemical processes.*

2: Business Stream: Recent Advances in Longitudinal Data Modelling

- 08:30-08:50 Alfred Musekiwa *Meta-analysis of longitudinal studies measuring continuous outcomes (PhD preliminary work).*
08:55-09:15 Anneka Grobler *The use of pattern mixture models in the analysis of longitudinal studies with missing data.*
09:20-09:40 Carl Lombard *Joint modelling in prospective studies.*
09:45-10:05 **Samuel Manda** *Expectation-maximization estimation of joint longitudinal model for multiple repeated measures and recurrent events processes.*
10:10-10:30 L Masenyetse *An analysis of biomarkers and time to event measures in HIV/AIDS patients in a South African pharmacovigilance study.*

3: Theoretical Statistics

- 08:30-08:50 Amal Helu *Inference on overlapping coefficients in two Lomax populations using ranked set sampling.*
08:55-09:15 Tchilabalo Kpazou *Point estimation and confidence intervals for the quintile share ratio.*
09:20-09:40 Edmore Ranganai *The approximate distribution of the regression quantile multiple case predictive leverage statistic.*
09:45-10:05 Elizabeth Girmay *The relationship between the tail probability and a parameter as a guideline for choosing a threshold.*
10:10-10:30 **Mark Dowdeswell** *A vine copula analysis of some SA indices.*

4: Business Stream: Electricity and Renewable Energy

- 08:30-08:50 Siphumlile Mangisa *Statistical analysis of daily electricity demand profiles.* **Y**
08:55-09:15 Caston Sigauke *The influence of temperature on daily electricity load forecasting in South Africa using Bayesian parameter estimates to a MARS model.*
09:20-09:40 Thandekile Nyulu *Weather neutral models for short-term electricity demand forecasting.* **Y**
09:45-10:05 Edmund Ahame *Statistical model for risk diversification in renewable energy.*
10:10-10:30 **Jenny Holloway** *An application of intervention analysis to determine the effects of load shedding and the recession on South African electricity consumption.*

5: Applied Statistics - Case Studies

- 08:30-08:50 Stefan Britz *Application of GGam distribution to water data.* **Y**
08:55-09:15 Kirshnee Moodley *Von Mises distribution for modelling wind data in Port Elizabeth.* **Y**
09:20-09:40 Legessee Debusho *Statistical models for soil animal count data with excess zeros.*
09:45-10:05 Erin Hanly *Modelling of athletics records using compound distributions.* **Y**
10:10-10:30 **Chris Gilfillan** *Sampling without replacement as applied to a mosquito repellent test.*

Session 3B: 11:50-13:00 (Thursday 3 November 2011)

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1: ICCSSA - Energy

- 11:50-12:10 Vanessa Ndlovu *Clustering of customer behaviour.* **Y**
 12:15-12:35 David Friskin *Evaluating the effect of the energy and financial crises on electricity production in South Africa: An exponential smoothing approach.* **P**
 12:40-13:00 ***Vince Micali*** *Statistical methods for energy time of use classification.*

2: Hidden Markov Processes

- 11:50-12:10 Victoria Goodall *Hierarchical Bayesian models of ungulate movement in the Kruger National Park.*
 12:15-13:00 ***Iain MacDonald*** *Hidden Markov models for time series: An introduction and survey.*

3: Business Stream: Financial Markets

- 11:50-12:10 Frederik Koegelenberg *Comparing optimal asset allocation under the new Regulation 28.*
 12:15-12:35 Tafadzwa Mutengwa *A comparative analysis of the LIBOR and Swap market models for pricing interest rate derivatives.* **Y**
 12:40-13:00 ***Carel van der Merwe*** *The importance of IFRS and other considerations in financial instrument valuations.*

4: Theoretical Statistics - Time Series and Longitudinal studies

- 11:50-12:10 Ali Satty *Analysis of incomplete longitudinal data with ignorable missingness: A comparison of two approaches.* **Y**
 12:15-12:35 Khreshna Syuhada *A note on prediction with misspecified model.*
 12:40-13:00 ***Morné Sjölander*** *Time series models for paired comparisons: A new application and new AREAHP models.*

5: Applied Statistics - Programming

- 11:50-12:10 Nombasa Ntushelo *The analysis of a multidimensional binary dataset in R using the vegan package.* **Y**
 12:15-12:35 Andrew Timm *Programming in R: Exploring classes, methods and interfacing.* **Y**
 12:40-13:00 ***Ruan Rossouw*** *General Process Data Management Framework.*

Session details

Session 3C: 14:50-16:25 (Thursday 3 November 2011)

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Room codes: 1-Diamond, 2-Ruby, 3-Emerald, 4-Amethyst, 5-Onyx, 6-Crystal

1: Applied Statistics - Factor Models

- 14:50-15:10 **Esmé Jordaan** *A multi-group confirmatory factor analysis model for the Rosenberg self-esteem scale.*
- 15:15-15:35 Henri Mwambi *Statistical analysis of factors associated with the incidence of African Horse Sickness in South Africa.* **Y**
- 15:40-16:00 Chantelle Clohessy *The evaluation of micro-wind turbine noise.* **Y**
- 16:05-16:25 Santosh Mishra *Development research: Principles, methods and challenges.* **Y**

2: Applied Statistics

- 14:50-15:10 **Andrehette Verster** *Modelling of SOI volatility through the Wishart distribution.*
- 15:15-15:35 Solly M Seeletse *Weighted geometric mean: application to comparison problems.*
- 15:40-16:00 Oluwaseun Alawode *Construction of some balanced incomplete block designs (BIBD) from the (7, 7, 3, 3, 1) BIBD using lotto designs.*
- 16:05-16:25 Ronald Wesonga *A parameterized framework to the analysis of the probability of aircraft delay.*

3: Young Statistician Stream (Chairperson: Jacky Galpin)

- 14:50-15:10 Sulaiman Salau *Contextual influence, frailty and the spatial patterns of child mortality in Nigeria.* **Y**
- 15:15-15:35 Anna Kaduma *Modelling the Random Effects and Error Covariance Matrices in a Longitudinal Data Model as Functions of Covariates.* **Y**
- 15:40-16:00 Jacob Majakwara *Application of multiserver queueing to call centres.* **Y**

4: Education (Chairperson: Michael Murray)

- 14:50-15:35 S Pitts, A Hazra J Ramjith, B Adams, C Huang, *Sharing experiences of teaching statistics to (very) large first year classes.*
- 15:40-16:00 Delia North *Success in entry level modules at UKZN: What has changed between 2005 and 2009?*
- 16:05-16:25 Robert Wamala *Likelihood of completion and extended candidature of a Ph.D: A five-year analysis of studies at Makerere University.*

5: Modelling

- 14:50-15:10 Unathi Ngundze *Statistical comparison of international size-based equity index using a mixture distribution.* **Y**
- 15:15-15:35 Lise Werner *Modelling acute HIV infection using longitudinally measured biomarker data including informative drop-out.*
- 15:40-16:00 Maupi Letsoalo *Some issues in the modelling of time-varying effects using marginal structural models.*
- 16:05-16:25 **Habib Ollah Esmaily** *Analysis of incomplete longitudinal ordinal responses.*