



Message from the Chairperson

Dear ICCSSA member,

The June newsletter promises to be an interesting read with updates on the recent Bol initiatives with some feedback on Recognition of Prior Learning (RPL) and Continuous Professional Development (CPD) portfolios. I am sure that many of our members would have followed the media coverage on the recent elections. ICCSSA members Pravesh Debba and Jenny Holloway discuss their experience on the prediction model used to forecast the 2019 national election results on the night of the elections. The June breakfast seminar and AGA is also featured in this edition. Feel free to contact the ICCSSA Bol (admin@iccssa.org.za) with any interesting ideas or contributions you may have.



ICC SSA – Annual General Assembly

The Annual General Assembly of ICCSSA was held on the 14 June 2019 at Houghton Estate, SAS offices in Johannesburg. The invited speakers were Dr. Pali Lehohla, the former Statistician General (SG), Prof. Pravesh Debba and Mrs Jenny Holloway both from CSIR and members of ICCSSA.

The title of the talk by Mrs Holloway and Prof. Debba was “Riding the 2019 National Election Prediction Rollercoaster”. For the 9th time, starting with the 1999 general elections, the CSIR has run an “election night” prediction model to provide estimates of the final results based on the results of the very early voting districts (VDs) declared and these predictions have now become a recognised feature of South African elections. This year, perhaps more than in past elections, the media widely reported the CSIR’s predictions alongside the recorded counts from the IEC and spokespeople for the CSIR were seen and heard on a

number of television and radio shows. Working in partnership with the SABC, was once again another emotional rollercoaster ride for the election team, moving between excitement, extreme stress, panic and finally relief when everything worked! Although the election predictions are intended to assist the media to be able to bridge the information gap at the time when the final result is still unknown, the CSIR also sees the work as means to highlight the usefulness of mathematics and statistics in an area such as elections by showing that, with the aid of statistical clustering and some mathematical algorithms, one can achieve good predictions from just a small sample of results. The election prediction model operates on the basis of reducing the bias resulting from the “non-randomness” of the incoming results that arises from the order in which results are received. In addition, the model concept itself relies on two core principles relating to voting behaviour, namely:

ICC SSA - UNITE, DEVELOP, EMPOWER & ENDORSE PROFESSIONALS AS TRUSTED STATISTICIANS

Chairman: Mrs Yoko Chhana; **Chief Executive:** Mr Philip Steyn; **Financial Director:** Ms Valentina Litvine;
Secretary: Ms Vanessa Ndlovu; **Directors:** Dr Inger Fabris-Rotelli; Mr Paul Mokilane; Dr Mark Nasila;
Dr Ruan Rossouw; Dr Caston Sigauke



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1. Voters do not randomly allocate their electoral preferences but are influenced by political, socio-economic and demographic factors, as well as past voting history; and
2. Changes in voting behaviour between one election and the next are also not random, but are correlated with past voting habits, demographic and socio-economic factors.

These two principles combined allow us to cluster our voters (or rather voting districts) together based on their past voting pattern and to then expect that any changes to voting behaviour in the new election will be fairly similar within each cluster. Therefore, when the early results come in we can use the early results to calculate a new voting behaviour profile for each cluster and then use these new cluster profiles to estimate voting behaviour for the remaining voting districts that have not yet been counted (see Greben et al., 2005, and Greben et al., 2006 for model details). Since the predictions are continuously updated as the sample of counted results increases, the actual results on the scoreboard and the predicted results converge once 100% of VDs are declared, as shown in Figure 1.

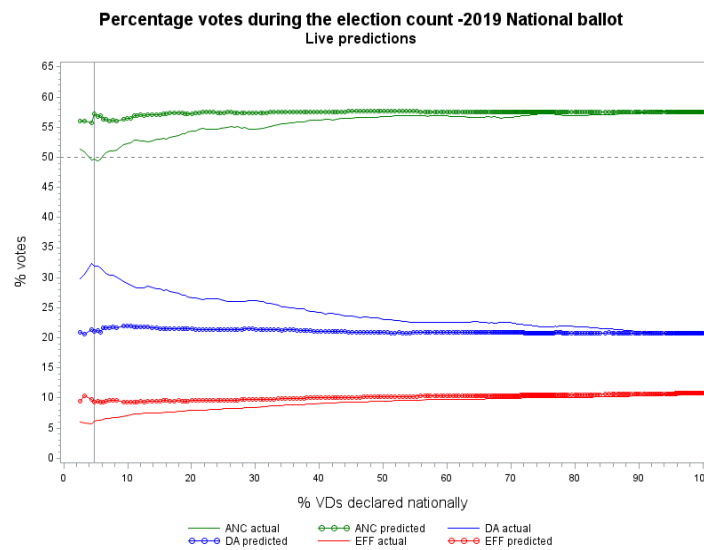


Figure 1 Actual and predicted national results for the top 3 parties

For the 2019 General elections, the prediction models once again performed well, delivering accurate prediction results for the national ballot, particularly for the ANC and the DA from very early on. The first national prediction was released at 2:45pm on Thursday 9th May for use in a TV interview (see Table 1). At this stage only 4.8% of VDs were declared nationally and this sample of VDs contained only 1.5% of the total valid votes cast in the elections.

Table 2 First National ballot prediction @2:45am, Thursday 9th May

National ballot				
Party	Predicted % @4.8% VDs declared	Current % @4.8% VDs declared	Final %	Error
ANC	57.18	49.65	57.5	0.32
DA	21.07	31.98	20.7	-0.37
EFF	9.33	6.09	10.8	1.47

Provincial ballot predictions also progressed well, with predictions being within an acceptable margin of error after about 10-15% of the VDs had been declared in each province. For Gauteng, however, it was particularly difficult to predict the 50% majority for the ANC, since this prediction fluctuated within the 1% error margin around the 50%



majority line for most of Thursday. The first provincial ballot predictions were released to the media on the Whatsapp group as soon as a sufficient proportion of VDs had been declared in each province and an extract of these first predictions are given in Table 2.

Table 3 First provincial ballot predictions on Thursday 9th May

Provincial ballot							
Province	Time on Thursday	%VDs declared	Party	Predicted % @time	Current % @time	Final %	Error
Western Cape	3:27am	14.1	DA	55.02	59.78	55.45	0.43
			ANC	28.31	23.38	28.63	0.32
			EFF	4.08	3	4.04	-0.04
			GOOD	2.93	3.84	3.01	0.08
Eastern Cape	3:34am	12.3	ANC	69.68	71.33	68.74	-0.94
			DA	16.13	16.21	15.73	-0.4
			EFF	6.78	5.96	7.84	1.06
			UDM	2.33	1.81	2.6	0.27
Free State	4:26am	12.1	ANC	60.34	56.76	61.14	0.8
			DA	18.68	22.01	17.58	-1.1
			EFF	10.72	10.06	12.58	1.86
			VF PLUS	5.06	6.2	3.96	-1.1
Mpumalanga	5:31am	14.6	ANC	70.87	62.38	70.58	-0.29
			EFF	11.68	11.12	12.79	1.11
			DA	9.97	16.41	9.77	-0.2
			VF PLUS	2.97	5.56	2.43	-0.54
Gauteng	6:35am	9.4	ANC	48.71	53.17	50.19	1.48
			DA	28.71	25.2	27.45	-1.26
			EFF	13.61	13.39	14.69	1.08
			VF PLUS	4.78	4.16	3.56	-1.22
Limpopo	8:54am	11.6	ANC	75.53	72.98	75.49	-0.04
			EFF	12.72	12.13	14.43	1.71
			DA	6	7.91	5.4	-0.6

Acknowledgements

We'd just like to acknowledge Dr Jan Greben who developed the initial methodology, as well as all members of the project team (IT specialists, analysts and media representatives) who put in many long hours both in the lead up to and during the elections. We would also like to thank the SABC for giving the CSIR the opportunity to be involved in the South African general elections.

References

- Greben, J., Elphinstone, C., Holloway, J., de Villiers, R., Ittmann, H. and Schmitz, P., *Prediction of the 2004 national elections in South Africa*. South African Journal of Science 101, 157-161 (2005).
- Greben, JM., Elphinstone, C. and Holloway, J., *A Model for Election night forecasting applied to the 2004 South African Elections*, ORiON 22, 89-103 (2006).





Dr. Lehohla’s talk titled “The System of Signals in South Africa”, addressed the following questions:

- What informs the system?
- What are the signals?
- Who are the actors?
- How adequate are they?
- Are they used or not?
- If used to what effect and if not to what consequence?
- Optimising the system - What then needs to be done?

He began his address by unpacking the underlying systems informers involving the *knowledge society* and official statistics. He made a distinction between a *well-informed* and a *complete knowledge society* by defining a well-informed society as a better informed society while a complete knowledge society was the one with all the knowledge of the world which is available to everyone, everywhere, simultaneously and freely. He argued that, in order to realise a complete knowledge society,

non-technological infrastructure should first be upgraded, literacy should be improved, as well increasing access and promoting the use of information and basic freedoms. He pointed out that knowledge comes in three forms, namely; 1) knowledge as information, 2) understanding, and 3) insight, competence and authority. The producers and consumers of information include political authorities, mass media, planning authorities, specialists, resource authorities and statistical authorities. He highlighted the contributions of official statistics which among others provide the basic information on society, knowledge base for counter information and statistical advice to government. He outlined how Stats SA has transformed from the period of decadence prior to 1994, the period which was underpinned by fragmented and poor quality, concealed access, skepticism and destructive competition, to a period of revitalisation in 1995 which was strengthened by the increase of products which were more rigorous, gradual quality improvement and collaborative efforts, and supportive to the current period of sustenance from 2005 underpinned by focus on quality and coordinated support. He pointed out that Stats SA is currently a well-oiled machine. He emphasised that statistics forms the bed rock for measurement of progress towards domestic and global goals and Stats SA is playing this role efficiently by providing relevant statistics timeously, accurately and free. He further highlighted the use of some major components of official statistics in addressing national priorities in Table 4:

Table 4: National priorities

Priority Area	Statistics
Grow the Economy	GDP and set of economic surveys, CPI, PPI
Create jobs	Labour Force Survey and Quarterly Employment Survey
Deliver services	General Household Survey, Census, Community survey and Municipal Census
Eradicate poverty	GHS, Census, Community survey
Improve health	Mortality statistics
Impact Africa and the world	Contribution to statistical development

He also shared some insights about the plight of the South African youth who are the face of joblessness. He looked at the youth deprivation headcounts in terms of the four dimensions of poverty, which are health, education, living standards and economic activity. He highlighted education attainment as the main contributor to poverty followed by adult unemployment. He examined unemployment by highest level of education within population groups. The statistics showed that of the unemployed, approximately 9% were black graduates compared to approximately 4% who were coloured graduates. About 61% of unemployed blacks have Matric and below as their highest qualifications compared to 49% of the unemployed coloureds.



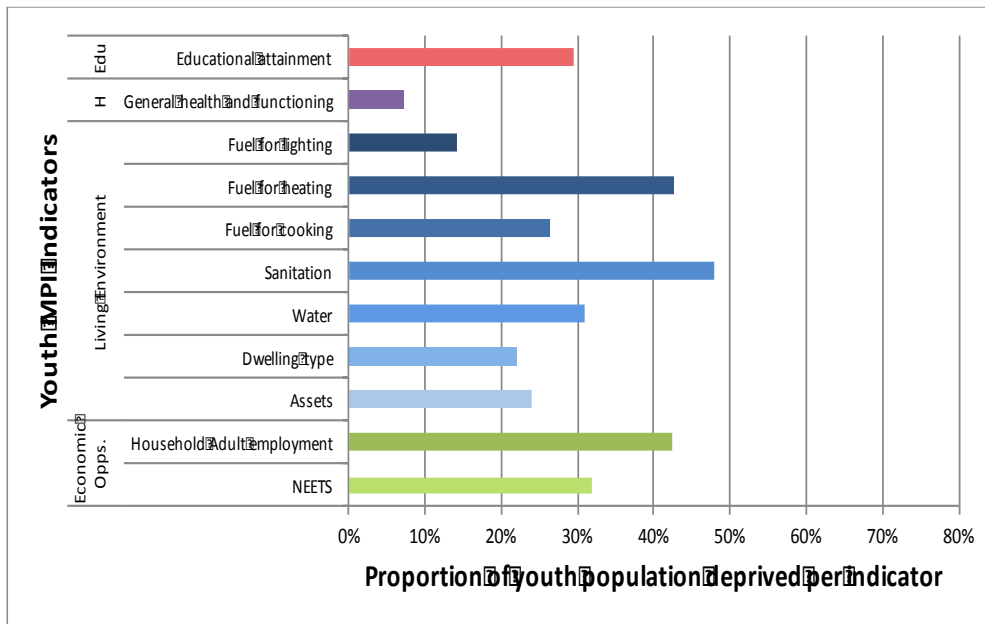


Figure 2: Deprivation headcounts

The former SG looked at the education outcomes and he painted a gloomy picture pointing to the regressive proportions in Bachelors completion rates amongst blacks as shown in Figure 3.

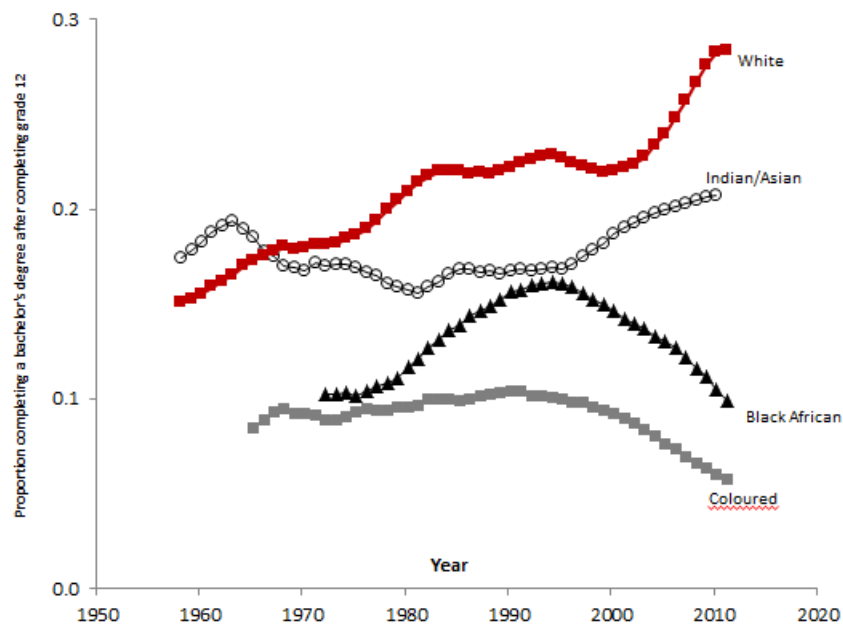


Figure 3: Progression ratios

He talked about the ailing economy whose quarter on quarter real GDP contracted by 3.2% in the first quarter of 2019. The main contributors of contraction included Agriculture which contracted by almost 13.2%, with Mining production reducing by nearly 10.8% and Manufacturing by about 8.8%.



He concluded his talk by stating that the presentation was meant to emphasise the importance of official statistics and the role of the statistician in informed decision making but to also “position the audience at the razor’s edge” for them to decide on the type of role they will play as practicing statisticians.

ICCSSA – Recognition of Prior Learning (RPL)

Recognition of Prior Learning (RPL) is required of ICCSSA as a body by SACNASP and SAQA. ICCSSA has put together the RPL policy in order to provide access to membership through non-traditional routes. The policy of ICCSSA is to evaluate for any level of learning, specifically what has been learnt and how, and the gain of knowledge and skills through experience e.g. from the workplace. If a candidate does not meet the minimum requirements for a particular class/type of membership detailed in the ICCSSA Constitution, the candidate may apply for Recognition of Prior Learning (RPL). The process and guidelines of RPL is outlined in Article IX of the ICCSSA Bye-Laws accessible from <https://www.iccssa.org.za/wp-content/uploads/2017/11/Amended-ICCSSA-Bye-Laws-V6-09.05.2014.pdf>



An applicant will be asked to complete the application form, available on the ICCSSA website, provide all supporting documentation, evidence, letter of motivation and pay the indicated fees, before the RPL assessment process can begin. The board is happy this is now in place and can assist applicants for our multidisciplinary field.



ICCSSA – Continuous Professional Development (CPD)

The preparation for the rollout of the Continuous Professional Development program progressed well over the past number of months. The initial design and CPD process were refined and finalised into a formal requirement to enable system development. The board approved the costs to enable the development of the CPD system onto the ICCSSA website. The initial development was completed and testing indicated that some functionalities were not fully developed. The second release of the CPD system were completed end of May 2019 to be tested during June 2019. Formal rollout of the CPD program to members will commence in quarter 3 2019.

SASA conference

The 61st Annual conference of the South African Statistical Association will be hosted by the Department of Statistics of the Nelson Mandela University from 27 - 29 November 2019 at Port Elizabeth, South campus.

Important dates

31 July 2019	Submission of abstracts and entries for Postgraduate Paper Competition
13 August 2019	Nominations for Thought Leader Award
31 August 2019	Nominations for Herbert Sichel Medal
15 September 2019	Submission of papers for SASA Conference Proceedings
1 October 2019	Nominations for 2020 SASA Executive Committee
31 October 2019	Applications for Honours Bursary and Scholarship Competition
31 October 2019	Applications for Third Year Bursary and Scholarship Competition





Faculty Natural and Agricultural Sciences
Department Mathematical Statistics and Actuarial Science
Lecturer / Senior Lecturer / Associate Professor / Professor
Job ID: 2879

Lecturer

Salary: R 351 354.00 - R 491 043.00

Total rem. package: R 506 667.43 - R 682 564.00

Senior Lecturer:

Salary: R 449 955.00 - R 554 496.00

Total rem. package: R 630 825.94 - R 762 464.10

Associate Professor:

Salary: R 575 763.00 - R 685 617.00

Total rem. package: R 789 243.54 - R 927 571.84

Professor:

Salary: R 734 718.00 - R 831 198.00

Total rem. package: R 989 399.89 - R 1 110 887.63

This post was previously advertised as Job ID 2761. All applications received in response to the previous advertisement, will automatically be considered again. Previous applicants therefore do not need to reapply.

****NB! Applications may only be submitted online. Please ensure that all relevant documentation is attached to your application. INCOMPLETE APPLICATIONS WILL NOT BE CONSIDERED. Please note: Compile/Convert all the below documents as one document (Pdf or Word), when uploading it on the online applications system.***

- a detailed curriculum vitae and cover letter (please note that the first three (3) referees on your CV will be contacted with regard to reference checking);
- certified copies (not older than 3 months) of all academic records;
- certified copies (not older than 3 months) of qualifications (please provide the SAQA accreditation in the case of foreign qualifications);
- a certified copy (not older than 3 months) of your identity document (ID).
- Proof of registration with a Professional Body (if applicable).
- A copy of your driver's license (if applicable).

Duties and responsibilities:

- Teach and assess postgraduate students.
- Provide study leadership at postgraduate level.
- Supervise master's and PhD students.
- Conduct research and publish it in accredited journals.
- Source external research funding and forge linkage with the industry.
- Participate in community projects.

- Recruit postgraduate students.
- Perform general administration duties as applicable at university level.

Inherent requirements:

Lecturer:

- Master's degree in Mathematical Statistics, applied Statistics, Biostatistics, or a related master's degree in Mathematical or Actuarial Sciences or similar on NQF level 9.
- Proven experience in presentation of poster or oral presentations at conferences or equivalent activities.
- A good academic record.

Senior Lecturer:

- PhD in Mathematical Statistics, applied Statistics, Biostatistics, or related PhD in Mathematical or Actuarial Sciences or similar on NQF level 10.
- Proven experience in presentation of paper/posters at national scholarly conferences.
- Proven national recognition for specialist expertise and research in a specific area of scholarship.
- An NRF rating or demonstrate potential for obtaining an NRF rating.
- Proven experience in supervision of graduated masters students.
- A proven research record of relevant publications in national and international accredited journals.
- Proven experience of service as an active member of national or international scholarly society.

Associate Professor:

- PhD in Mathematical Statistics, applied Statistics, Biostatistics, or related PhD in Mathematical or Actuarial Sciences or similar on NQF level 10.
- Experience as external examiner for postgraduate students.
- Proven experience in presentation of research papers at national conferences, where there is evidence of peer review papers.
- Act as an editorial board member of high-quality national scholarly journals.
- Proven national recognition for specialist expertise and research leadership in a specific scientific area of scholarship.
- An NRF rating of C3 or equivalent status.
- Proven experience in the supervision of graduate masters students.
- A proven research record of relevant publications in national and international accredited journals.
- Serve as a member of a national scholarly society.

Professor:

- PhD in Mathematical Statistics, applied Statistics, Biostatistics, or related PhD in Mathematical or Actuarial Sciences or similar on NQF level 10.
- Experience as external examiner for masters' and doctoral students.

- Act as editorial board member of high-quality international / ISI / IBSS journals.
- Proven international recognition for specialist expertise and research leadership in a particular area of academic scholarship (e.g. regularly serves as a reviewer for international / ISI / IBSS journals).
- A NRF rating of C1 or C2 or equivalent status.
- Demonstrated successful supervision of graduated Master's and preferably graduated doctoral students.
- Proven experience in delivering keynote addresses at national scholarly conferences.
- Serve as a member of an international scholarly society OR an international committee or agency concerned with research at higher education levels.

Required competencies:

- Knowledge of biostatistics, bioinformatics, data science, quantitative genetics, statistical genetics or genomics
- Business acumen.
- Result orientated.
- Strategic thinking.
- Building coalitions.
- Leading.

Recommendations:

- Registration at the South African Council for Natural Scientists.
- Experience in statistical analysis for complex data using R, SAS, ASREML, WOMBAT or BLUPF90
- Programming skills using R, Fortran or any other relevant language.
- **Lecturer:**
 - Teaching experience at tertiary institution level.
 - Good communication and social skills.
 - Willing to enrol for a doctoral degree at the first available opportunity, if not yet attained by the time of the appointment.

Assumption of duties:

1 January 2020.

Closing date:

19 July 2019.

Salary:

The salary scale is available on request.

Enquiries:

For enquiries, please feel free to contact 051 401 7705/7267 or email Recruit@ufs.ac.za

Fringe benefits:

(Subject to specific conditions): pension scheme, medical aid scheme, group life insurance, housing allowance, leave and sick leave, service bonus and study benefits.

General:

The University reserves the right not to fill the post. The University subscribes to and applies the principles prescribed by the Employment Equity Act. Preference will be given to candidates from the designated groups, in accordance with the principles of the aforementioned act and the employee profile of the specific department/division.

Applications that are incomplete will not be considered. The UFS will only consider applications of candidates who meet all the inherent requirements of the position. Communication will be limited to shortlisted candidates only. Should you not be contacted within six weeks of the closing date for applications, you may assume that your application was unsuccessful.

APPLY ONLINE:

External candidates can click [HERE](#) to apply online.

UFS staff members can log onto PeopleSoft, click Self Service, Recruiting, and Careers to apply online.