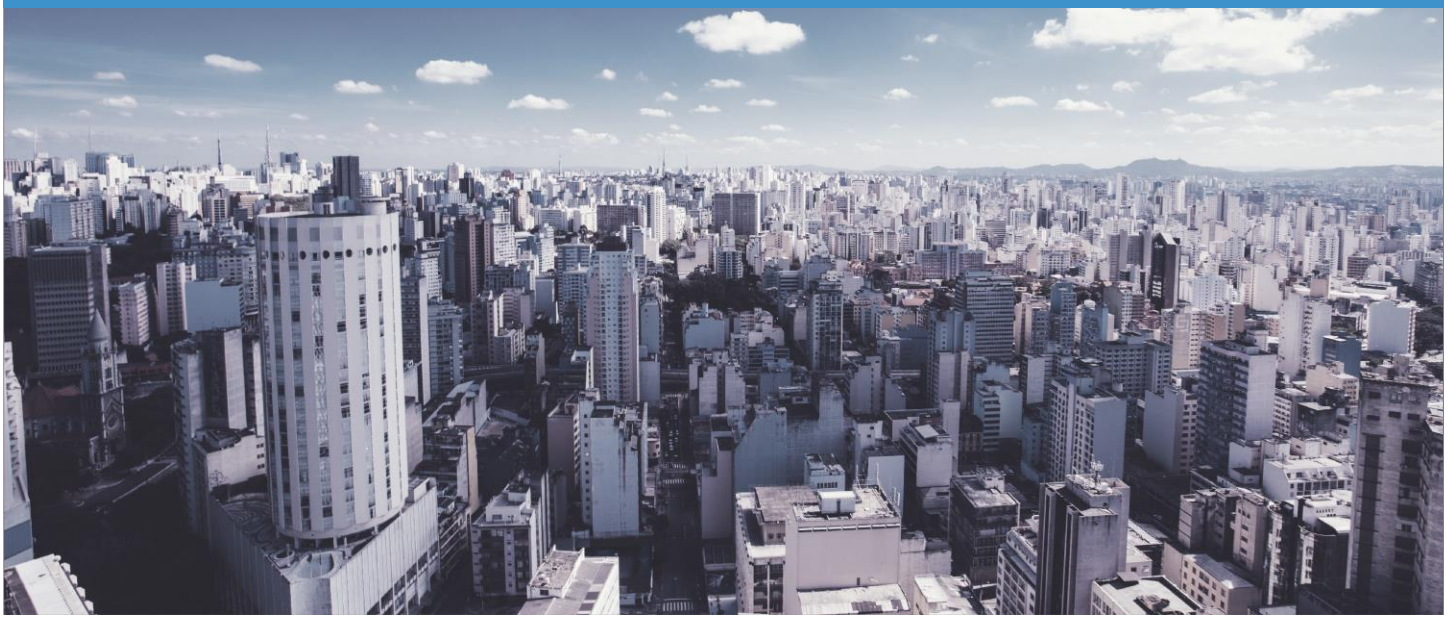
AKTUA TIMES

THE *FUTURE* ISSUE



INTERVIEW WITH AN ACTUARY

Martin Riekert

Getting to know one of your favourite Actuarial Mathematics lecturers and more about life as an actuary. Also look out for tips to students.

Page 8

THE FUTURE OF INSURANCE

Where are we headed?

Exploring artificial intelligence, pet insurance, cyber security and artificial organs.

Page 3

PRINTABLES

Assignment list and calendars

Making sure your second semester is an organized one.

Page 12

Letter from the Editor

Between rushing from one class to the next and spending countless nights on assignments and studying, we students often forget about the bigger picture. So much so, that when we are faced with a seemingly simple question from non-actuarial students such as, “What does an actuary actually do?” most of us are at a loss for words. The best description I have heard thus far is that an actuary is *“a fortune teller in the financial world”.* As actuarial and statistics students, the future is inseparable from our lives in any form imaginable, especially in times like these where uncertainty and unexpected events are the only true constants.

In this our *Future Issue*, we discuss the effects the future might have on insurance and the actuarial field. We also receive some insights from students and our interviewed on how their past has been shaping their present and future.

As we look forward and diligently prepare for our futures, we must however not miss the small joys in every seemingly mundane day, since that is all, I have discovered, that keeps you going with enthusiasm and vigor.

Marguerite Lamey

“You don’t have a right to the cards you believe you should have been dealt. You have an obligation to play the hell out of the ones you’re holding.”

Cheryl Strayed

editorial

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Interested in writing an article for our next issue? We would love to hear from you!

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The Future of Insurance

Current buzz words we can expect to hear much more of included in insurance-talk

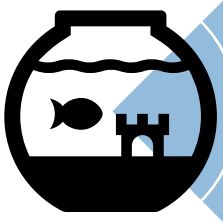
ARTIFICIAL INTELLIGENCE

Instead of predictions being dependent on samples of past performance to make statistical predictions, artificial intelligence has enabled thepresent usage of enormous datasets to make predictions on real events in real time. The shift from category-based data to individual-based data is also being made. AI also boasts with quicker claims settlements and a reduction in the risk of fraud.

CYBER SECURITY

In his prize winning essay, "Cyber Risk is Opportunity", Michael Solomon writes: "Many of the risks that arise in cyberspace are not new, and other professions are looking to actuaries to take the lead. Regarding a cyber incident data repository, a broker, two underwriters and a reinsurer suggested that actuaries are uniquely qualified to process this data to develop new, and enhance existing, cybersecurity insurance products." Their IT-expertise among other skills, especially make actuaries the preferred professionals to "take the lead".

PET INSURANCE



To prevent unforseen expenses, pet owners can now purchase a speciality type of casualty and property insurance policy. These include injuries sustained from accidents, veternarian and surgical costs and certain medications prescribed for treatment of illnesses.

ARTIFICIAL ORGANS

Artificial organs are becoming the means to avoid waiting lists for human donors, since demand exceeds supply by far. Recent transplant technology has improved survival rates immensely, however, it is unlikely to influence short term insurance products significantly. If many deaths can be delayed with say 10 years, the impact will be noteworthy, but quantifying such senarios currently are a lengthy process. Especially so, since there are often many other treatment options readily available.

EXPLORING the future of the actuarial field

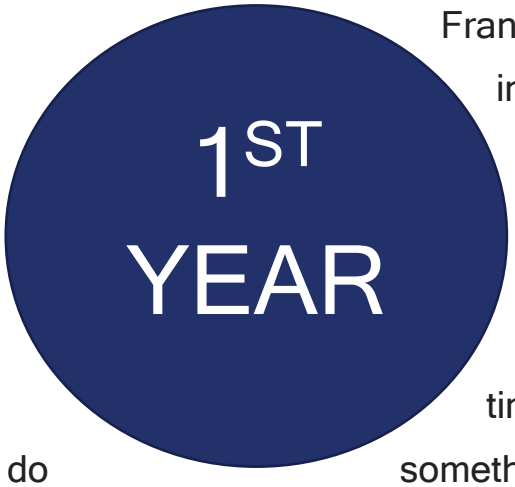
EXTRACT FROM FOLLOWING INTERVIEW WITH MARTIN RIEKERT

The first thing that comes to mind is the recent viewing in the press. There are lots of views on how technology, artificial intelligence and all of those things will start to replace certain occupations and certain careers in the future. I think we start to see it every day, I mean it's very practical. Today we have taxi drives and I think in a few years we will have drivers drive a car, so it's very real. However I'm obviously by it, but I do believe that the actuarial profession, yes the skills, the techniques and the calculations that we use to problem solve, that computers and AI can do very effectively. And in class, we do linear interpolation, but in the work environment you don't do that; so there's been an easier way to solve problems. However, the actuarial profession also uses a lot of judgment and that I think it will be difficult to replicate in an artificial environment like technology.

So, there's a reason why statutory actuaries are very seldom young actuaries: they are more experienced actuaries with quite a bit of years behind them and the reason is not because they become better at doing calculations, but they become more experienced and they've seen more scenarios and can actually just apply better judgment at a later point of time. Therefore, I think that the judgment component of our career will always be there and that's difficult to replicate in an artificial space. So where do I see it going into? I don't think that people will disappear any time soon and be replaced. A more recent trend is interesting how actuaries are being employed in much more diverse fields than the traditional environments. When I studied, the enterprise risk management wasn't even a subject as part of the actual course so now it's becoming a specialist and a fellowship subject. Banking was something similar that didn't exist in the past and now it's an exam in South Africa.

I think our skills will start to be translated in many other fields and I think it's our unique way of looking at problems and solving them very systematically that is transferable to any space. I always use an example; I think it was part of my professionalism course, one of the fellow actuaries that were there, worked at a paper manufactured company and that is the oddest place for an actuary to work. Yet someone there realized that it is a unique skill that can be utilized in a very non-traditional environment. It's not even financial. Yet the skills are valued in those kinds of industries. I also think that the industry would expand into an alternative that you might not think its relevant today.

MY FIRST SEMESTER



Frankly speaking, coming from secondary to a tertiary institution I had quite a few expectations; most of which were very unrealistic. Unlike high school, university is so demanding that it is sometimes almost impossible to fulfill those demands. I must say that I found the transition extremely overwhelming. I personally, was time-challenged. This revolved around what and when to do something. It all ranges from preparing for lectures and attending them, let alone doing both informal and formal assessments. The freedom that comes with being on your own makes it difficult to balance between academic and social life. Being somewhat computer illiterate, somehow disadvantaged me in terms of proficiently working online. With the teaching pace, it is very challenging to keep up with the work. So, falling behind is an issue. Despite the many hassles that the university accompanies, there is still a lot to enjoy. Well, the unlimited access to the internet does it for me the most. All the facilities that you can make good use of, bring so much convenience; for instance, the library with its own books and computers. As soon as one gets a good grasp of how things work, it becomes an exciting habit. I love being disciplined and university is a great place for acquiring a great deal of discipline.

" The freedom that comes with being on your own makes it difficult to balance between academic and social life."

- *Vutlhari Obey Maluleke*

2nd YEAR

We have Calculus 218, IAS 211, Statistics, Informatics and Linear Algebra for our first semester. This semester is key to the remainder of the degree, particularly because IAS 211 blocks the other modules in 2nd semester and third year. You are always on your toes with the workload and the stress about making it through just makes it worse, but - fear not when Red Bull is there! (It's key to the degree). All in all, the workload is intense, and it builds up every day. The degree is surely picking up pace and it is not like 1st year. The work was still a bit school related and I had my favourite: COS132 in first semester and stats in second semester giving me the *oomph* to get through the work. But as for this year, my focus points are 218, Stats and IAS (INF and linear algebra receives less attention compared to the others), but the best part of it all is that all your modules are interlinked in some way which helps a little with the studying. At the end of the day you got to be the zero after the number and not before the number.

> ***"At the end of the day you got to be the zero after the number and not before the number."***

Make the most of it!

- ***Kunj Desai***

3rd YEAR

So far, I am enjoying this year the most since I started this degree. I'm sure I am not alone when I say that majority of our first two years of study were not the most fun of subjects. I felt like I was learning so many new things but had no idea what they actually meant or how they were used. I could integrate, differentiate solve differential equations as proficiently as my roommate studying Engineering, but my level of application of these skills seemed to be lacking. In third year I can finally see that the seemingly random chunks of knowledge I have acquired may be forming a sturdy educational foundation for what is to come. These first few months I have learnt more about SAS and R than I did combined in my previous years. Our two stats modules are definitely more complex, but I find it much easier to study them as, in my opinion, they are more interesting. We have practicals every week in which we code some of the work we have done, which I found to greatly improve my understanding and appreciation of the work. I envy the students after my year who do not have to take WTW 310 Analysis, you are luckier than you will ever know... That is the only module I have a strong distaste for. Besides that, I am surviving and thriving in third year and always learning. I hope to get into Honours next year and see where I go from there!

"I can finally see that the seemingly random chunks of knowledge I have acquired may be forming a sturdy foundation for what is to come."

- *Dani Simeonov*

Interviewing

MARTIN RIEKERT

ACTUARY AND LECTURER

EARLY YEARS AND BACKGROUND

TELL US A BIT ABOUT YOUR EARLY YEARS. WHERE DID YOU GROW UP AND STUDY?

I grew up in Limpopo, so between Mokopane and Polokwane is where I was at school. I grew up on a farm which very few people will actually believe about me and then I came to Tukkies for my undergrad in Actuarial Mathematics and I did a diploma for one year at The University of Cape Town.

WHAT MADE YOU DECIDE TO STUDY ACTUARIAL MATHEMATICS? WAS IT ALWAYS SOMETHING THAT YOU WANTED TO DO?

No, not at all. I went to an industrial psychologist with whom I already had a close relationship. I went through a test and she latterly recommended that my first choice should be Actuarial Science and my second choice should be BCom with the intention to switch to Actuarial Science. I have to admit I had no idea what it was at that stage and I tried to read up a bit. The internet was less useful back then than it is now. And I blindly followed her advice to study Actuarial Science. I have to admit it was however one of the best decisions that someone else made on my account.

> ***"I have to admit it was however one of the best decisions that someone else made on my account."***

HOW DID YOU EXPERIENCE YOUR UNIVERSITY LIFE?

Coming from a small town, the first thing coming into The University of Pretoria was just the magnitude of how big it is and the social aspect around was quite a different experience. From an academic perspective though 1st year was busy, but it wasn't overwhelming, not like 2nd year which hit us most at the back. Our 2nd year is probably like it is now, it's a full course with a lot of new information and to techniques that you are exposed to. I had lots of empathy for the 2nd year students! And then suddenly 3rd year

became a much better experience, I won't say the work load is less, but I think it's just more manageable and you start to really specialize by then you do mostly Actuarial Subjects or even if it's not purely Actuarial you can see that it's already starts to prepare you for work.

WHAT AND WHERE WAS YOUR FIRST JOB AFTER GRADUATING?

I was the Momentum bursary holder. From my 3rd year, I got my bursary from Momentum, which means my first job was at Momentum, and I've been there ever since. I can honestly say that I've never been for a proper work interview even after 10 years of working.

HOW DID YOU EXPERIENCE THE TRANSITION FROM UNIVERSITY TO THE WORKPLACE?

I think one thing that helped me with that transition, and what I will recommend absolutely to everyone to try to get this opportunity, is to do vac-work. I must admit my vac-back work, which was in my 3rd year that was a bit of a shock because you come into the work environment and it is never what you expect. It was a great experience, but it's difficult to suddenly work 8 hours a day. It is difficult to connect with multiple people all with their own jobs and responsibilities and to start to deliver output as expected by managers.

> ***"I will recommend absolutely to everyone to try to get this opportunity, to do vac-work."***

My vac-work really prepared me a little bit for what to expect cultural wise, work wise and just the strain in terms of your attention span for 8 hours. Which means by the time that I started my vac-work at Momentum, it was nice to work in an environment where I knew people and with whom I built relationships in the past with and I also knew a little bit of what to expect from the work itself.

ALL ABOUT BEING AN ACTUARY

FOR HOW MANY YEARS HAVE YOU BEEN A QUALIFIED ACTUARY?

I've been very fortunate, I wrapped up my exams one year after university, but then I needed a total of 3 years work experience. So after 2010 I moved onto a fellowship.

> ***"It's very seldom that you are not challenged on a regular basis."***

DID EXPECTATION EXCEED REALITY WITH COMING FROM UNIVERSITY TO THE WORKPLACE?

I am very happy in my work environment; I enjoy what I do in terms of the actual job and focus areas and specialization. I enjoy the people, the teams that I work with and the colleagues that I often interact with. And I also think what the actuarial career gives you it's very seldom that you are not challenged on a regular basis. I can honestly say the last 10 years, almost every day is a new challenge in terms of new problems coming up, new challenges to solve, new problems to think about, new people issues to consider.

WHAT ABOUT BEING AN ACTUARY DO YOU ENJOY THE MOST?

What a qualified actuary or the qualification of a fellow actuary gives you is that it opens many doors. From the one extreme you can become a true technical evaluation and work with data and pricing or

you can actually decide to go the other way around to just move into management or leadership which might be an actuarial role or not. So what I enjoy about it: with the qualifications comes a lot of opportunities just because of the skill and talent that actuaries have and such a wide range of opportunities that you can enjoy. What I personally enjoy the most about my job is the people aspect around it. I truly enjoy meeting people; I enjoy mentoring people in my teams and taking a team on a journey to improving our business and making it more successful in the future.

BALANCING IT ALL WITH BEING A LECTURER

WHY DID YOU DECIDE TO BECOME A LECTURE ALONG WITH YOUR RESPONSIBILITIES AS AN ACTUARY?

Very early on I realized that I have a passion for teaching and for young people in general. Even at Varsity I did my first tutor job, I'll never forget it, the first time I stood in front of a class and tutored Calculus for the engineers I realized that that is something I wanted to do in the future. It gave me a rush and a purpose, and I just enjoyed it. I think like my previous comment about mentoring people and growing individuals, I have a true passion for that and students in general. It is amazing to stand in front of a class and teach you a concept and see how lights go on in people's eyes. That growth of an individual is really something that excites me. So yes, I honestly have to admit, I don't see it as a job: it's more a personal passion and a hobby.

> ***"I don't see it as a job: it's more a personal passion and a hobby."***

IN GENERAL, WHAT ARE SOME MISTAKES YOU OFTEN SEE STUDENTS MAKE?

Tips for students

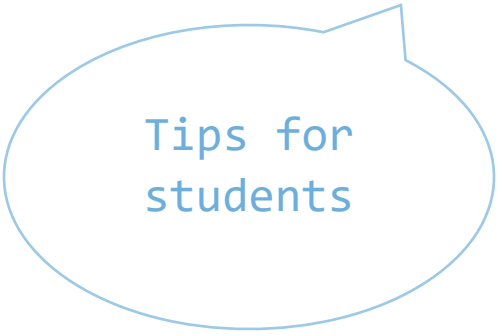
One thing that I think is starting to emerge more and more is many of the students think that Actuarial Science is a recipe. Meaning that we teach you a technique and then the students take that technique and they try to blindly apply it to any scenario or any question or any calculation that we give in an environment. That's probably mistake number one. *Actuarial Science doesn't teach you the recipes: they teach you a way of thinking and problem solving which you will always need to adapt for in scenarios that are being thrown to you and that mimics the real world.*

So in an exam environment there's a reason why a question will never look the same because you have to apply those techniques in different ways. In the real world it's the same, it's not as if the problem that I face today will be like the problem I faced yesterday. I need to keep on adapting my skills and techniques and ways of thinking to the scenarios at hand. As I mention to students in class, I'm a firm believer of balance so I think many students either "kuier" too hard or they study too hard and it's usually to extremes. *Where I think a good student and one that will excel not only at varsity but at life, is just to find that balance*. Don't get me wrong, you have to study hard. It's difficult to get through those scores by not studying hard, but the balance can enable you to study even harder in my view.

WHAT ADVICE WOULD YOU GIVE TO STUDENTS WHO ARE WONDERING WHETHER THEY ARE PURSUING THE RIGHT DEGREE?

I can totally relate. I've mentioned in class, it's something that I struggled with in my 2nd year and what I did about it at that point is I decided to go speak to a couple of Actuaries and Actuarial students in a work environment. They spoke through what they do on a regular basis, what their responsibilities are and how've they used their studies in order to apply that. That gave me a bit of an indication of, "Okay this is something that excites me, and something I can pursue and I think I can be happy in that work environment one day!"

I don't think that's practical for everyone so my first suggestion is to talk to someone in the work environment it gives you tips and tricks in science The internet is where there's probably the best kind of source, like the Actuary website and the UK website. *Make sure that you understand what you are going to do one day because many students think they are going to do calculations and Maths for the rest of their lives, that's unfortunately very untrue for 90% of Actuaries.*



Only a hand full of Actuaries is really stuck to the mathematics and calculus that we do in Varsity. You apply those techniques, but in real world scenarios. You are young enough; you can still make a different choice if you need to. It's difficult to decide at the age of 30 or 35.

WHAT WAS THE BIGGEST CHALLENGE YOU HAD TO OVERCOME TO GET WHERE YOU ARE TODAY AND WHAT MOTIVATED YOU TO ACHIEVE IT?

I think many people will probably expect it to be the academics and the qualification of an Actuary. That was tough, no doubt about that, it's not as if every second person can walk into an Actuarial job. If had to look back on my 10 years, my biggest learning that I got and experience that I needed to be where I am was actually the softer side of it, the soft-skills. Interpersonal relationships are very important in the work environment. It's not something that the Actuarial courses focus on at all.

And I think managing and leading people. It was my personal aspiration to move into a leadership role. Not all Actuaries want to do that, but I do. And that was quite a challenge for me to know how to inspire them, how to help them grow and just how to get a group of people to follow the same direction and deliver the outcomes.

WHAT IS SOMETHING INTERESTING ABOUT YOU THAT THE STUDENTS DON'T KNOW?

Something that started quite recently is I started to run last year. I was never an athletic individual ever in my life! I never played sports at school. I had very little intention to do sports or be active at varsity and most definitely for the first 8 years of my career. But last year I started to run and I'm doing my first marathon in November this year. For many people that is not a big achievement, but for me personally it's massive. And I've actually become an avid runner, I enjoy it, but I'm not a fast runner. I'm rather an enthusiastic one.

assignments

DATE	CLASS	ASSIGNMENTS	CHECK / DATE
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semester schedule

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WEEK 1							
WEEK 2							
WEEK 3							
WEEK 4							
WEEK 5							
WEEK 6							
WEEK 7							
WEEK 8							
WEEK 9							
WEEK 10							
WEEK 11							
WEEK 12							
WEEK 13							
WEEK 14							

weekly planner

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12 AM							
1 PM							
2 PM							
3 PM							
4 PM							
5 PM							
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