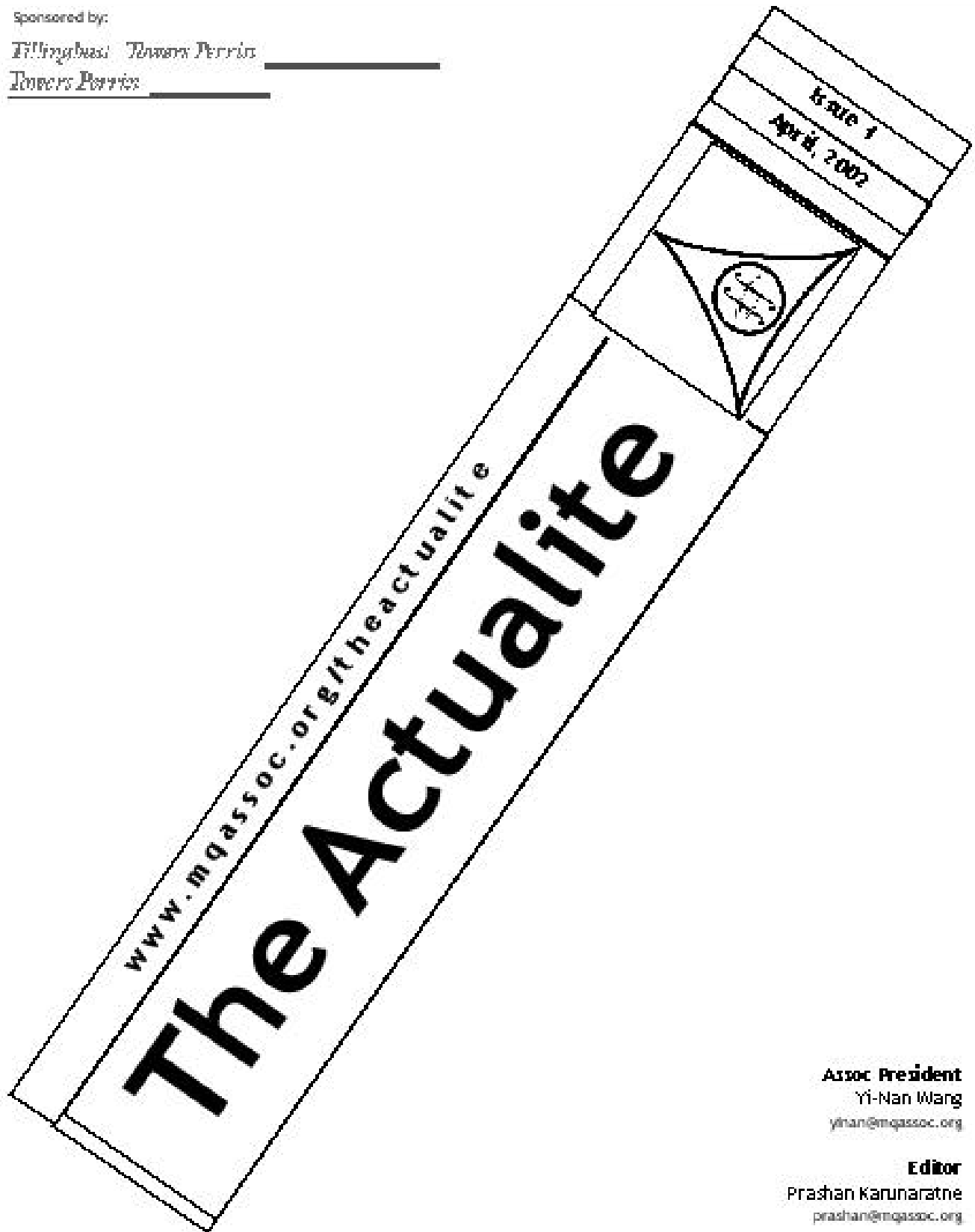

Sponsored by:

Fillingimasi Tamara Perrin

Towers Perrin



Assoc. President

Yi-Nan Wang

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Editor

Prashan Karunaratne

prashan@mqassoc.org

Welcome

G'day everyone, my name is Yi-Nan (James) Wang, and I am a third year Actuarial Student, some of you may want to ask why I put the "James" in brackets, well, because there is this new first year dude called, you guessed it, James Wang, so to prevent confusion and possible future court battles over naming rights, I choose to use my real name instead of James, just try to pronounce it in the right way, it is "Yeee-Nan".

After all that waffling, I just recalled that I have yet to inform you why am I writing this piece of seemingly irrelevant article, actually you may be surprised to know that the author is the President of Assoc for the year 2002, and it is my duty to welcome you to the Actuarial Students' Society of Macquarie University. Now before you are overwhelmed by the disappointment of knowing that Assoc is headed by such an incapable person who cannot even get straight to the point, I can assure you that the vast majority of the Assoc team are people of very high calibre and commitment, so please rest assured that we will do everything with in our capability to ensure you, as a member of Assoc, to reap the full benefits of your association with one of the largest and most professional run student societies on the Macquarie Campus, a view that was confirmed from my experience as an ex-Macquarie University Students Council Councillor.

Assoc recognises that we Actuarial Students are a relatively small but diverse group of people, the needs and wants of an anxious and eager first year student will be different from that of a seasoned and ambitious student in his/her final year of

study. Assoc will try to provide a range of services and events designed to cater for all of our members, but due to our relatively small population, the successes of each of our programs will be heavily dependant on the active support from you, the members of Assoc.

Okay, I can hear some of you saying that this article is becoming boring and full of rhetoric, and I think it is probably a good time to wrap up my first attempt in writing an article from the scary position of president of Assoc. But before you turn over the page, I would like to inform you that Assoc has a very informative and professional website at www.mqassoc.org, it is the primary way in which we communicate with you. The website contains all the info on Assoc and its activities, so please make sure you visit it before you log off today.

Finally, I would like to remind you of a couple of things. Firstly, Assoc is holding the QED Careers Forum on campus on the 6th of May, all the information are currently available on the website, and this magazine. Secondly, your membership cards are ready, again you should check our website to find out how you can collect them.

Thanks a lot for bearing with me folks. But watch this space, as I will continue to harass you from here in the future. If you have any thoughts or suggestions, please feel free to tell us via... I can hear you say... THE ASSOC WEBSITE! Cheers.

*Yi-Nan Wang.
Assoc President, 2002.*

Assoc Committee, 2002

Members of the Executive Board

Darren Ma	Chairperson
Yi-Nan Wang	President
Prashan Karunaratne	Vice-President
	Editor of The Actualite
Simon Theresia	Treasurer
Andy Hui	Secretary

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Assoc Councillors

Christina Fung	Year 1
Yi-Fei Bian	Year 2
Kevin Chi	Year 2
Hendry Lukman	Year 2
Anny Ma	Year 2
Thi Thanh Thuy Truong	Year 2
Teresa Tu	Year 2
Tony Do	Year 3
Elaine Pang	Year 3
William Tsoi	Year 3
John Chan	Year 4
Steve Farag	Year 4
Alen Golubovic	Year 4

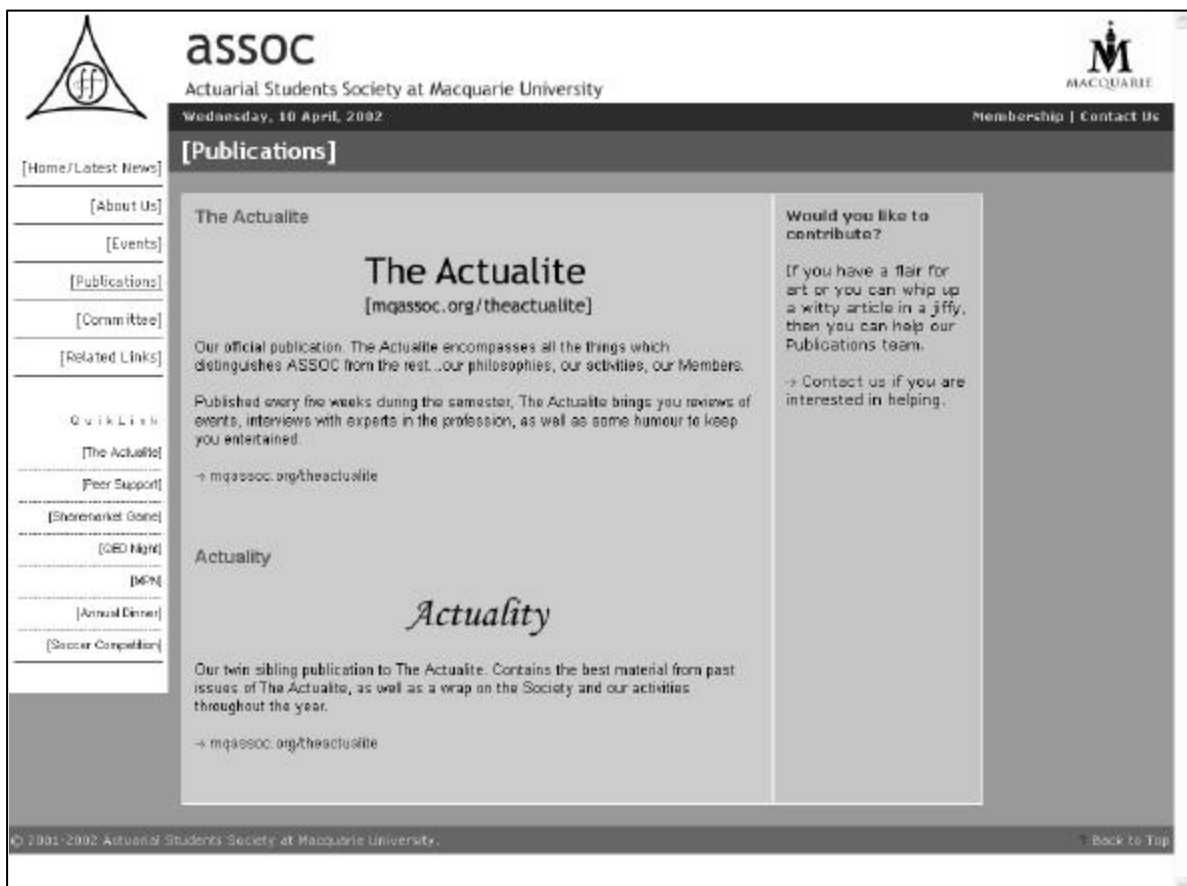
Other Members of the Committee

Wesley Chan
Bobby Leung
Gerard Ho

www.mqassoc.org

This year, we had to move the Assoc website to another server because our old sever, which provided its services for free, ceased to do so in 2002:-(This turned out to be great because now we pay a small annual fee and have a much better URL namely, **www.mqassoc.org** . Visit it! This year the website is something we all should be proud of, i.e. see the screenshot below. It was designed and is maintained by Danny Kwok, and to be honest looks and functions a lot better than the sites we use of our university itself. It also outdoes the 'website' of the corresponding society at the other university in Sydney which teaches this course which shall remain nameless.

Visit the site regularly to keep up-to-date with Assoc events happening throughout the year. There is a calendar of events and pages dedicated to each event as it gets closer. In Semester 2, Assoc members will be constantly logging onto the site when our Sharemarket Game gets underway. Our publications, 'The Actualite' and the yearbook will also be on the site for you to view or download, just click on the 'Publications' link, its that simple. You can also send an email regarding any Assoc-related matter, click on 'Contact Us' and fill in the online form and the relevant people will promptly attend to your matter.



Website by Danny Kwok.

Orientation Week

It has been a custom for clubs and societies at Macquarie University to have a stall during O-Week, and here at Assoc it is no different. For us, it was a front for informing prospective members of our cause and also allowing them to join us. In case you still haven't heard of us (how is that possible?), we are THE student society for Actuarial students. Our aim is to provide you, the Actuarial student, with career, academic and social services through our line-up of professional and social events throughout the year.

We had to do our fair share of advertising, which was made easier by the fact that all actuarial students in each given year attend an ACST lecture. We could not come up with other forms of advertising that had the same levels of efficiency, as wall space around the campus was totally covered with other clubs' posters or people trying to sell their textbooks. Competition aside, we soon saw that posters last no more than a day on the walls as Security seemed to be in charge of taking them down every morning. Also, it wasn't easy to tell by someone's face whether s/he was an Actuarial student.

We were lucky to get a stall in a good location, just opposite the fountain, which was easy to find for all students. On the first day we were set to get a record number of members (again), with over 180 students signing up. There was much interest from first year students, with almost 80% choosing to join the Premium membership scheme, which offered discounts for future Assoc events. We also had the support of a few prospective Actuarial students, as well as a

couple of Applied Finance students.

Why were students so keen on joining us? Was it our small, nominal fee, our offer of a free 3-course BBQ lunch, or a free copy of 'Actuality' the 2001 yearbook? Or was it because of the stalls adjacent to us (Scottish Country Dancing Society and who remembers the other) did not interest you? By the end of the week we had over 300 members, hopefully to retain our place in the university as the largest student society. We also look forward to good turnouts in events to follow. Trust me, it will definitely be an exciting year ahead, both with your studies, and your participation in extra-curricular activities.

If you have not joined us yet but still want to sign up, please e-mail us at assocwebmaster@mqassoc.org.

Faro Mok.

Go Figure! (ASX101)

The following definitions were taken from an ASX dummy's guide, "Interest... Investing in ASX Interest Rate Securities."

- "Annual coupon: A coupon that is paid once a year."
- "Bid price: Price a buyer is offering."
- "Corporate bonds: Bonds issued by a company."
- "Coupon date: The date on which the coupon is paid."
- "Exchange traded: A security traded on an exchange."
- "Government bonds: Bonds issued by a government."
- "Maturity date: The date on which a bond matures."
- "Offer price: Price a seller is asking."
- "Purchase price: The dollar amount paid for bonds (gross price multiplied by the number of bonds)" < you don't say.

Sausage Sizzle by the Gym

Give an actuary a maths problem:
solved.

Give an actuary a BBQ to set up and
problems pop up left right and centre.

It may sound easy to organise a BBQ but
wait till you try it.

What if no one turns up?

What if too many people turn up?

What if it rains?

What if everything turns out fine, no one
dies of food poisoning and everyone goes
home happy? Then I tell you, the BBQ was
quite a success.

As Assoc boasts a proud 300+ members,
a BBQ for all involved isn't a small task.
Quite a few enthusiastic volunteers helped
organise and run the event. From the
purchasing of foods, burning of sausages,
collection of tickets to the eating of
leftover snags, it was all hands on deck
and needless to say, all hands were more
than welcome.

Few problems arose on the bright
sunny day. Apart from forgetting
minor items and the chaos that
generally surrounds such events,
everything went according to plan.
The general consensus was that
everyone had an enjoyable time as
they should. It was also great that
someone had brought a soccer ball
along which initiated a game of
soccer... turning out to be an ideal
bonding exercise.

Each year, the Assoc orientation
BBQ is the prelude to the many
great events to follow during the
year. It is hoped that the BBQ sets
a benchmark to show members that
Assoc is a highly professional
student body with strong desires to

fulfil all commitments to it's members.

As the main organiser of the BBQ, I hope
you had a great time and won't hesitate
to involve yourself in the many events that
follow.

William Loc.

Notable changes which affect the Macquarie Actuarial program in 2002 (taken from the 2002 Undergraduate Handbook):

- ▲ ACST210, the unit we all adored is no longer with us, it has been replaced by a unit of the same name, known as ACST211, but this one will earn you 3 credit points (if you pass) instead of just the 2. So, are they teaching even more now?
- ▲ The (arguably) easier COMP unit, COMP124 has been replaced by the more sciencey COMP115. Of course, COMP125 is still available to those darers out there.
- ▲ ACST305 is NCCW (not to count for credit with) ACCG329, which is a blow to the AppFin doubles amongst us.
- ▲ Some prerequisites for ACST units have been weakened (yeah!):
- ▲ The COMP1X5 (Pass) prerequisite for ACST305 is now just COMP1X5 (PC), of course the other prerequisites still stand.
- ▲ The prerequisite for ACST401, which used to be ACST400 (Pass), is gladly now just ACST400 (PC)... the Actuarial Department decided to give us back one year of our life:-)

ASSOC

QED Careers Forum 2002

Who is QED?

QED is an employment agency specifically catered for Actuarial Students.

On QED night, a group of speakers from the agency will come to Macquarie Uni and

- ✓ Provide information and advice
- ✓ Share their expertise and experiences

Date: Monday 6th May, 2002

Venue: Union Function Room

Time: 6:00 to around 8:00pm

Charge: Free for Members

Non-members: \$3.00

Refreshments will be provided



Come to QED night and...



... Pick up tips on preparing a resume and surviving an interview

... Find out what employers are looking for - including technical skills and personal qualities

... Learn about the state of the job market - the different practice areas, skills needed, range of roles and employment prospects

... Receive guidance from the specialists on how to pass exams, which direction to take - all based on personal experiences

There will also be time towards the end of the night for speakers and students to mingle and chat.

The Actuarial Web

Here I am...
Entering the Actuarial Web

As a first year Actuarial student, I can't think of a better word to describe the Actuarial career than a web. Not because I'm stuck where I am (though some of you may be already), but more because of the overall impression that I have felt. Many factors constitute to this feeling. It is however largely based on what I have heard from other members of Assoc, which I will share with you. Essentially, the first four weeks as it seems to me is like beginning a quest, a long quest, with an aim of successfully acquiring an Actuarial degree and ultimately becoming an FIAA. However, what I will focus on is why I've consciously decided to enter this Actuarial network and like every one of you... why I'm determined to succeed.

"Among the available choices, Actuarial Studies easily surpassed."

Entering the web

Before one decides to embark on any career, it's essential that they evaluate themselves carefully. Being strong at maths and physics, together with a growing interest in the business world, I aspired to a challenging, exciting and prestigious career. Among the available choices, Actuarial Studies easily surpassed. I believe it will equip me with skills which are highly regarded, adaptable, and well sought for. Evaluating the "uncertainty of future financial outcomes" ¹ seemed intriguing enough to lure me into choosing this path. It is as I have heard, the

¹ Taken from IAAust's vision.

"worldwide passport" to a career in the financial sector.

In deciding my career, I have wanted to do something that is respected, and very professional. Having chosen Actuarial Studies, when someone asks me what I'm studying... my reply will be responded with "oh... you must be very smart... good at maths..." or something of that nature. This I believe reveals and emphasises the reputation the Actuarial profession has conveyed to the public, and I respect and value it. However, I've received this reply before, "what is actuarial...???" from someone who worked in a law firm!

Macquarie University's reputation in its Division of Economic and Financial Studies, in my perspective, is world class. In particular, its Actuarial Studies Department has a status that exceeds all others (not that there are many universities offering this course). This fact is also significant as it adds to the career's uniqueness. Furthermore, Macquarie University is "acknowledged as the world leader in actuarial education."² However, one of the most influential factors for me is

"oh... you must be very smart..."

Macquarie's teaching reputation and its close association with the profession. With staff that are highly experienced, both in the field of actuarial work and education, together with a department that has been long ago well established, it is as a whole very attractive. As a result, given my intention in this field of study, Macquarie University seems to offer the best opportunities to fulfil my expectations and goals.

² Taken from a letter sent out from the Actuarial Studies department.

I feel it is a necessity to mention Assoc as a part of Macquarie's Actuarial program. Simply, it is really a great thing to be involved in. It is a network of friends and colleagues, bound with the intention of promoting the Actuarial profession and the degree at Macquarie. It not only provides many opportunities to expand your talents, including leadership skills, but it allows you to interact, and meet more people. All this, I believe, indirectly sharpens your communication skills, which is essential, as well as making yourself more focused and aware of the Actuarial profession. Those who are not members of Assoc... I urge you to join. The QED Careers Forum coming up, which you should all attend, is something that I believe will demonstrate the integrity, importance and relevance of Assoc to the Actuarial degree at Macquarie. Assoc, as the current President says, is the most organised, dedicated association in Macquarie University. Be a part of it.

"Flipping though the 2001 yearbook, 'Actuality,' one cannot hide their shock..."

Into the web

Flipping though the 2001 yearbook, 'Actuality,' one cannot hide their shock when they turn from the first year's class list to the next. Obviously, it is not reasonable to compare the numbers in different years, but you would expect that it is roughly the same. Seeking further advice from other Assoc members, they say what you've observed is reality. Evidently, many do get trapped in this web.

I found this statement on an Actuarial site, after a link from the Assoc website (if you haven't checked it out take a chance to, it's www.mqassoc.org).

"I think the actuarial exam process needs to be lampooned... if only to preserve the sanity of those of us in the exam process"³

Regarding my views on the exam process, I think it is great. I like the idea that there are plenty of them, all demanding. (I don't think I'll be saying this when I'm preparing for one, but now it's fine.) The reason is that, I feel, it results in the high calibre and professionalism of all the candidates. Only the elite ones pass. This again reflects the nature of this career being one marked with prestige and the sense of excellence, which I value.

Evidently, the Actuarial web is a tough one, but certainly rewarding if you are successful. I have tried to make this a flippant article with the aim of entertaining the audience. Hope I've succeeded. Don't be intimidated by the web. Be a part of the great network. Have faith in yourself and best wishes to success. Lastly, I am delighted to be given the opportunity to contribute an article in the first issue of 'The Actualite,' 2002. Thanks.

Allen Juang.

³ <http://www.triskele.com/top50.html>
It's best not to visit this site as I think it is a bad influence! I regret seeing it.

What They Said...

Last year we ran an article where some first years were allowed to speak about everything which led them into an Actuarial degree at Macquarie. Here is the edited version of that interview for this year's first years to read. There were 4 first years and me, so this was really like a conversation which is why the sentences seem to jerk a bit.

When was the first time that you got interested in Actuarial Studies?

Around Year 11 and 12. I really got interested after the seminar conducted by the Actuarial Department.

Did your teachers have an influence on you?

They all told me not to do it, especially my Maths teacher. They said that it was too hard as well as boring. My English teacher told me that its a good career, but she said that I wouldn't have a life.

Why did you chose Macquarie University to do Actuarial Studies?

I joined Macquarie because it has a very established Actuarial Studies course. [The other university] only started a few years ago, they honestly don't know what they're doing. But I don't reckon once you've become a fellow that people are really going to care which university you are from.

Travelling to the city does take its toll and the surroundings here are quite nice compared to _____.

Was the prospect of earning a 'high' salary, money, an attraction in any way?

Of course it was! When I went to my careers fair, I met a rep from Macquarie, he was holding this Big Dollar sign... I don't know why, I just got attracted to it. We like Maths, and the money is a bonus factor. I wouldn't do one without the other. Money cannot rank above interest. If you're

not interested in a subject, you won't get success out of it. If you're not successful, obviously the money doesn't come.

A lot of parents think that their kids should go into medicine. These days however, a lot of people want to go into Actuarial Studies because they think that it is a growth field.

Do you think that there's a prestige factor in doing Actuarial Studies?

Not many people know what an Actuary is. The people who do know however, do see the prestige in it. When my high school friends ask me what course I am doing at uni, and I say "Actuarial Studies," they tell me, "You're Gonna Fail! Good Luck!"

"...he was holding this Big Dollar sign... I don't know why, I just got attracted to it."

What do you define an actuary as?

Laugh

The person who analyses and

manages risks, I dunno something like that. The Actuarial field is such a diversified field these days. You just need to look at the Part III exams, they've got Finance, they've got Investment... It's changed a lot and obviously it's going to change even more later on. So rather than pinpoint what we're supposed to do, we just look at a problem an way, "What can we do?"

Coming back to the previous point, when people say that they do not know what Actuarial Studies is, what are the keywords you use to describe it, or what an actuary is?

I use the words "risk" and "premium" a lot, but then they seem to get the impression that we just calculate one premium and that's it! They think that the Actuarial profession is very volatile in that sense.

What do you think the actuarial stereotypes in the public are? Are we "nerds", are we "money hungry", etc?

I guess it's all of those. The public's not well informed.

They can't actually see the practical results of a maths figure by just looking at it. Especially those who don't understand, they just pick up the work Actuaries/ Actuarial Students have done – they see a piece of paper with all these figures going around... That's why they think, "Oh, they get a lot of money for doing nothing."

Is there anything that the Actuarial community can do about this?

It's a very small profession, there's only around a thousand, that's so small.

We don't necessarily need to tell everyone about what we've done. If they know what and Actuary/ Actuarial Studies is, then that's good. We get a chance to have our work appreciated. You work so that the world's a better place. Of course we want to be recognised, that's just part of motivation. It shouldn't really worry us though, if we're not recognised.

People seem to associate us with accountants, that we're more boring and more antisocial.

Our subject and the contemporary uni culture don't mix, there's little that can be done.

Do you feel that you have adequate access to lecturers and tutors?

They always say that they are available, but I'm worried that I haven't used them.

In order to understand a lot of the material, you have to think about it yourself. No one is going to tell you how to do the exam. Actuarial training tells us that we have to solve problems ourselves, because that's what we'll be doing at the end of the day. Obviously, if you can't solve it, you have to go ask someone rather than just sitting there agonizing about it.

Evaluate ACST151.

I think the professor is quite good and very knowledgeable. I like how he says stuff like "blooming" and "jolly." He has a good lecturing style. The lectures go hand-in-hand with the textbook which is tailored for the course.

I think that it is very important that we study ACST151 in Semester 1 straightaway. It is a very good introduction, and also you know immediately whether you will like Actuarial Studies or not, and if you don't, you can change early.

ACST151 is very broad and it shows you everything. It really makes those of us who are interested want to learn more.

Since you are all enrolled in double degrees; do you find the recommended program restrictive?

Yes, the recommended program is very restrictive. But then again, we want a double degree in minimum time, which is why we have to put up with such a compact program. I think that those of us in the AppFin double have just the one elective.

You also have to look at the hours we have per week, its only about 16 hours, 4 days a week, and we're not packed from 9 to 5.

What's Up in Semester 1		
Date	Event	Location
Monday, May 6; 6:00 - 8:00 pm	QED Careers Night	Function Room, Union Building
Week 10	The Actualite, Issue 2	Your ACST lecture
TBA	Actuarial Conference	More details soon

Evaluate the bond of being in a group of First Year Actuarial Students in a university of thousands.

There seems to be a lot of rivalry, everyone is trying to get an edge over each other, it's very competitive. This year everyone feels like their

education is really important. University is the next phase of life; you need to

"...everyone is trying to get an edge over each other, it's very competitive."

forget about the HSC, all the marks, all the fighting, and all that. We're all straight from the HSC and people call us the cream of the crop. It's an inherent problem, we've got so many above average students stuffed in one place. Everyone's thinking, "Oh my gosh, someone in here got a hundred UAI, and they're doing this too!"

What do you think of the senior actuarial students? What role do you think that they should be playing?

I've just met a couple. They've been friendly and helpful. Seniors could join in to have activities with us. Peer support would be a good idea.

What do you think of ASSOC - the idea of having an Actuarial Students' Society?

I think the idea of an Actuarial Students' Society is great, we have our own community thing going on.

I'm looking forward to social events like the Annual Dinner. Careers events such as the QED Night should also be really helpful.

The BBQ was great, everyone turned up (because it was free!).

Why do you think that the majority of students enrolled in Actuarial Studies, are having Applied Finance as their double degree?

I don't know, it seems to be because everyone else is doing it! It's the degree of the moment, Finance is a growth field. Applied Finance has something to do with Actuarial Studies, unlike say, Computing. Actuarial Studies give you the base, your employer knows that you can solve a problem logically. And then you've got your double as well.

How has university changed your life?

I don't have a social life since I started uni. Uni is basically my social life. University is important to us, that's why we call ourselves "uni students," we take uni seriously. We worked hard to get here, and we continue to work hard.

What are your thoughts about about Part III and Postgraduate study?

Doing Actuarial Studies, we're serious about getting qualified. If we're not getting qualified and we're going to focus on something else, we might as well forget about the Actuarial degree because it is so difficult.

If I wanted to do a postgraduate degree, I would do it part-time. After 4 years, a lot of things change. I would most likely have to come back for it.

Prashan Karunaratne.

› shafted >>> & A Beautiful Mind

If you remember your Game Theory from ECON111 you would be not too unfamiliar with a payoff matrix as below:

(X, Y)			Player Y	
		Share		Shaft
	Share	(0.5, 0.5)		(0.0, 1.0)
Player X				
	Shaft	(1.0, 0.0)		(0.0, 0.0)

This is as you may or may not know, the payoff matrix experienced by players on the Channel Nine game show, 'Shafted'. Players chose one of two options: to Share or to Shaft. There is a total prize pool of \$X, which can be shared equally if both players chose to do so, or may be won by just one player if s/he is the only one who chooses to shaft.

Unlike the examples encountered in ECON111, there is no dominant strategy for any of the players in the above game. (Note: a dominant strategy by definition is one which a player chooses regardless of the other player's strategy.) Assume that the prize pool is a million dollars as above (1.0). Consider Player X:

- › The worst possible outcome for sharing is winning nothing (0.0), i.e. when Player Y shafts.
- › The worst possible outcome for shafting is also winning nothing (0.0), i.e. when Player Y shafts.

Player X tries to maximise the worst possible outcome of 0.0 and s/he will either share or shaft. If Player Y shafts, Player X wins 0.0 whether s/he shares or shafts. And by symmetry for Player Y.

This is where the beauty of the game kicks in, there is nothing that either player can do to guarantee her/him all or even half of the prize money. Players are given the chance to convince each other to chose a particular option, i.e. to share the money, but in the end, they privately keyin their choice.

Using the analysis above, you would expect that players would chose various permutations of the share/shaft strategy. But everyone seems to shaft on the TV show.

The first matrix indicates that there isn't a dominant strategy when considering pure money alone. However, this is a game played by human beings, human beings with some element of pride. That is, if one player wins the lot, the other player is considered to have not only won zero, but to have lost something as well. So lets change the payoff matrix to the one below, (-0.1 indicating any number less than zero):

(X, Y)			Player Y	
		Share		Shaft
	Share	(0.5, 0.5)		(-0.1, 1.0)
Player X				
	Shaft	(1.0, -0.1)		(0.0, 0.0)

There is a dominant strategy in the above matrix, which is to shaft. Consider Player X:

- › The worst possible outcome for sharing is -0.1, i.e. when Player Y shafts.
- › The worst possible outcome for shafting is 0.0, i.e. when Player Y shafts.

Player X will try to maximise the worst possible outcome which will be if Player X shafts because $0.0 > -0.1$. And by symmetry for Player Y.

Thus, both players shaft, and no one wins anything, which is in the best interests of Channel Nine. Players on the game show probably go through this second matrix instead of the first. Then again, this is all theory.

Now, let's look at it probabilistically. Assume that $P(\text{Shaft}) = P(\text{Share}) = 1$ for both players:

- The expected payout of choosing to share is $(0.5 \times 1) + (0.0 \times 1) = 0.25$.
- The expected payout of choosing to shaft is $(1.0 \times 1) + (0.0 \times 1) = 0.5$.

Given that your most reasonable assumption of the other player's strategy is a 50% chance either way, your expected payout is greatest if you chose to shaft. But, a big but here... the best information the other player has is the same information above. Thus, the probabilities do not make any sense because they are not independent unless one of the players is a computer which does not think and randomly chooses a particular strategy.

Shafting in everyday life

So how does society, especially business operate and not collapse under contracts of a similar nature? For example, for a particular contract a reasonable matrix would be:

(X, Y)			Player Y	
		Co-operate		Cheat
	Co-op	(1.0, 1.0)		(-1.0, 2.0)
Player X				
	Cheat	(2.0, -1.0)		(0.0, 0.0)

There are two options for each player, to co-operate, or to cheat on the contract. The dominant strategy above is to cheat on the contract. If both players cheat, both parties to the contract gain nothing, but people do stick to contracts in society.

We have only looked at the first round of such a contracting process. We also have to consider what will happen in subsequent rounds conditional on what happened in the previous rounds. Assume that two people go into such a contract with a 'tit-for-tat' strategy. Each player's strategy is to co-operate in the first encounter, and thereafter co-operate or cheat according to the behaviour of her/his opponent, which is not an unreasonable assumption. Suppose that after each play of the game there is a probability say, H, that another round will be played. Summing a geometric series, the expected number of iterations will be $1 / (1 - H) = 4$.

(X, Y)			Player Y	
		Tit for tat		Cheat
	Tit-tat	(4.0, 4.0)		(-1.0, 2.0)
Player X				
	Cheat	(2.0, -1.0)		(0.0, 0.0)

If both players co-operate in round one, they continue to do so in all subsequent rounds and their expected payoff is 4.0 each. If both players cheat, they continue to do so, and their payoff is still zero. If your opponent is a perpetual cheater, your best strategy is to cheat in all subsequent rounds. If your opponent is playing tit-for-tat it is better to co-operate ($4.0 > 2.0$). Therefore cheating is no longer the dominant strategy.

Let $P(\text{meet a tit-for-tat opponent}) = p$ and hence $P(\text{meet a perpetual cheater}) = 1 - p$.

The expected return for tit-for-tat will then be:

$$4p + (-1)(1 - p) = 5p - 1.$$

The expected return to cheating will then be:

$$2p + (0)(1 - p) = 2p.$$

The proportion of honest people in society

Thus, tit-for-tat will give us a higher expected payoff if:

$$5p - 1 > 2p$$

$$p > 2$$

If the probability of meeting a person playing tit-for-tat exceeds 2, it will be in a player's best interests to adopt that strategy as well. Once, this critical proportion of tit-for-tat strategists in a population is exceeded, there will be a tendency for it to grow because people will learn that co-operation is in their own interests. The higher the probability of repetition, and hence the higher the number of iterations of the game, the lower this critical probability will be.

This extra 'twist' if you like, is probably why Channel Nine is happy to recycle the players on 'Shafted'.

PS I am not claiming that the above analyses is flawless. Neither am I claiming it to be my own. It's just stuff that you encounter in second and third year microeconomics units which most of you will not be attempting. Hopefully, the probabilities and expected values were appealing to you nevertheless.

John Nash

The basis of game theory studied in the economics and

finance today was founded by John Nash, the schizophrenic genius portayed in the movie 'A Beautiful Mind.' (No, I haven't spoilt the movie for you! Btw, go watch it.)

Not unlike some of us, Nash was an eccentric mathematician. His main result, the "Nash Equilibrium", was published in 1950 in the Proceedings of the National Academy of Sciences, USA. Nash was only 21 at the time, and the dissertation was 27 pages long.

In 1994, Nash shared the Nobel Prize for Economics with John C. Harsanyi and Reinhard Selten - for what he claims was his "most trivial work". In the 21st century, Nash Equilibrium and Game Theory is used to analyse everything from international trade negotiations, to evolutionary biology, TV game shows and filling space on the pages of an actuarial magazine at an Australian university.

For those nonactuarial people out there, I'm sure that you're surprised that those probabilities and expected values from STAT170 aren't boring and irrelevant afterall, and never expected it to be the essence of a TV show and/or a movie.

Prashan Karunaratne.

