Biomed Benchmark
News from Biomedical Science at Monash

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Winner of the 3 minute thesis – Renee Duncan

Renee Duncan's win in last year's SOBS 3 minute thesis competition has once again shown that creativity is the key to success in scientific pursuits. Distinguishing herself amongst a number of more conventional presentations, Renee's dramatic samurai themed interpretation of the chopping mechanism of proteases obviously caught the attention of judges.

Open to all PhD students throughout SOBS, the competition required participants to summarise the science behind their thesis in under 3 minutes, using one PowerPoint slide and language the average person could understand.

"My theory was: how would I explain my PhD to my six-year-old cousin. I thought to make it a bit more fun I would make it interactive. I work on proteases, which are proteins that cleave other proteins, so my title was 'MASP-2 and C1s: the Samurai of Complement'. I indicated that they chopped up proteins like samurais, which included me wearing a lovely samurai headband and looking like a bit of a clown", says Renee.

Renee's research investigates a mechanism of the immune system called the 'complement' pathway which acts as the body's first line of defence against bacterial infection. This pathway consists of a series of proteins which are activated in a domino effect by cleaving the previous protein.

"I'm looking at how the initial protein in the cleaving process interacts with immune disorders which can over-activate or under-activate this 'complement' pathway. The example I used in my talk was sepsis, which is over-active complement, so I gored everyone out with a disgusting photo of sepsis."

In preparing for the presentation, Renee maintained a relaxed approach. "I think I just ad-libbed it in the end, it either flows or it doesn't. In my PowerPoint slide there was virtually no text because people don't read in 3 minutes so I just had the word 'infection'. I tried to relate it to everyone, because everyone's had an infection in their life. I then just quickly showed the specific sections of my proteases that I found bind to the substrate."

Renee was awarded a $1000 travel grant for first place, but says this was only one of the benefits of participating in the competition.

"I was ecstatic to win, I was jumping up and down, $1000 travel award, that's pretty good, but it's also great to have on your CV. I think if you can dumb your project down into layman's terms and people still get it, it means you get it as well."

New first-year biosciences lecturer – Dr Sharon Flecknoe

Dr Sharon Flecknoe's recent appointment as the SOBS Early Year Bioscience Coordinator has represented something of a career transition. After spending the last 10 years completing a PhD and productively working as a research officer in Associate Professor Stuart Hooper's research lab in the Monash Physiology Department, Dr Flecknoe recently took up the opportunity to explore a long-standing interest in education.

"Although I really love research and enjoy my science, I have always had a passion for education; that's what facilitated the move across." says Dr Flecknoe.

Dr Flecknoe's new position is part of the Biomedical Education Advancement Unit (BEAU) which was conceived at the end of last year as a unit within SOBS which will facilitate educational progress and maintain the high standards of the School. In this role, Dr Flecknoe will oversee the implementation of a biomedical science elective unit into the curriculum of the new John Monash Science School (JMSS) and help facilitate interactions between its teaching staff and SOBS.

"The John Monash Science School opens this year and will be made up of students who have a proven academic ability in science. One of our responsibilities as academics and scientists is to capture the passion these students have for science."

Dr Flecknoe will also be involved in facilitating the delivery of a number of subjects, which have been designed by staff within SOBS, into the Monash College Diploma of Health Sciences. Monash College is an independent tertiary institution affiliated with Monash University which enables its high performing students to transfer into equivalent courses at Monash University. In addition to this, Sharon will be working on further integration of biomedical science education into vocational courses taught at the Monash Peninsula and Gippsland campuses.

Sharon's position as Early Year Bioscience Coordinator is funded for the next three years by the Faculty of Medicine, Nursing and Health Sciences. In this time, she is confident that BEAU's goals to enhance teaching and facilitate staff development in the field of biomedical education can be achieved.

"We've only really been operational since the middle of August, but we've come a long way. We're already building relationships with John Monash Science School, streamlining processes at Monash College, and developing bioscience teaching in the nursing course at Gippsland. Over the next three years, I'm sure that we won't just be restricted to these projects – it will be ongoing."

John Monash Science School – Principal Peter Corkill

In 2010, Monash University's Clayton campus will become home to over 200 Year 10 secondary students who will make up the first intake from the new John Monash Science School. The John Monash Science School is Victoria's first specialist secondary school devoted to fostering the maths and science disciplines in its students.

As the school's founding principle, Peter Corkill has had the difficult task of outlining the academic and administrative agenda for a learning institution without precedent.

"This is probably the most innovative and exciting opportunity I've seen in education in a long time, particularly around science and maths. The John Monash Science School will give students the opportunity to be at the forefront of each field of science, both on the theory, curriculum side and in the school's facilities." Says Mr Corkill.

The concept behind the John Monash Science School was to arrest the decline in the number of school leavers going into science-related courses. While the school is an independent institution from Monash University there will be a considerable interaction between John Monash secondary students and the resources at Monash University.

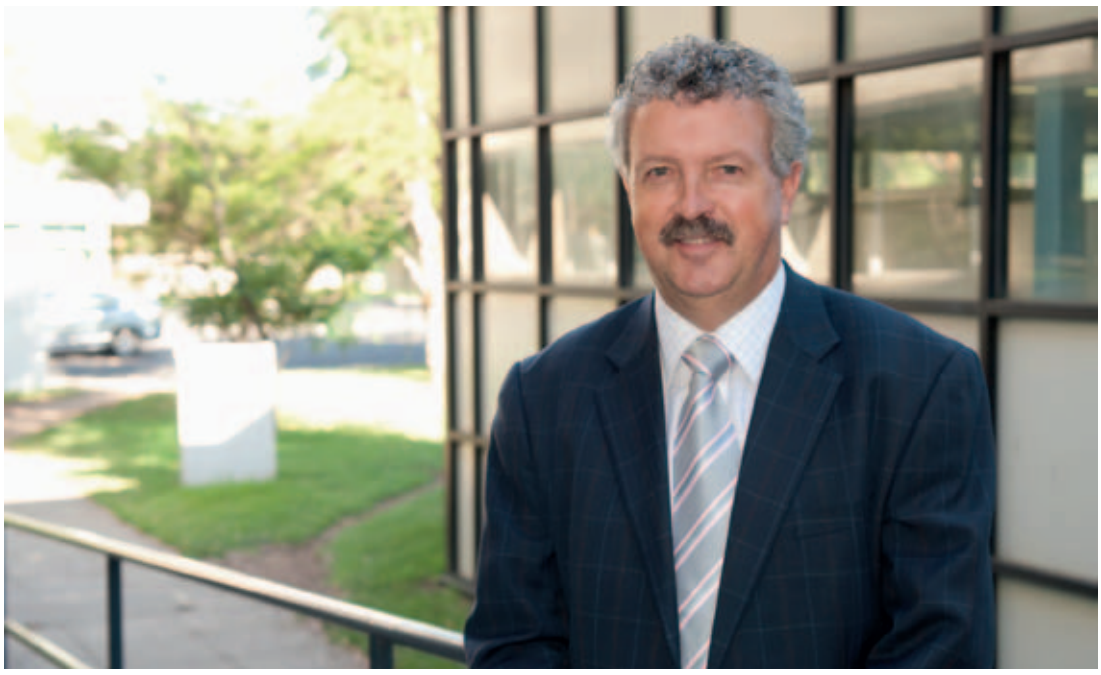
"We have an academic liaison team, who will cover chemistry, physics, biology, maths, science, geoscience, who will be in and out of the school and organise for some of our classes to occur in Monash University's laboratories or lecture spaces. If there are visiting scientists of world renown, we think our kids would really benefit from going over to the uni to listen to a lunchtime lecture, things like this."

The John Monash Science School will also be focused on providing professional development for its teachers. Due to correspondence between Monash University's Faculty of Education and the John Monash Science School, it is planed that teachers at the school will have the option to further their educational qualifications while working.

"Teachers could come to us for a set period of, like, three years, and during that time undertake a masters degree or something like that, and then head off into leadership positions back in their own schools or in another school."

For Mr Corkill, the appointment as principle punctuates a 30 year career devoted to science education. Previously the principle of Cheltenham Secondary College Mr Corkill says:

"Teaching in most schools, you have your courses written in Year 10 physics, chemistry etc and people do a great job of teaching that. But in answer to the question: where is the cutting edge of physics right now, teachers might not be able to tell you that, they haven't had time to keep up with it all. The thing that attracts me to John Monash Science School is the opportunity to get at the forefront of your own discipline and bring that new wealth of knowledge into teaching."



Student profile – Mai Bui – biomedical science/engineering student

Mai Bui began her studies in Biomedical Science/Engineering program at Monash in 2006. In addition to her normal studies, Mai is actively involved with Engineers Without Borders. This interview records her views about this involvement.

What made you join Engineers Without Borders (EWB)?
I first heard about EWB in my second year of study through a friend who invited me along to a 'Solar Oven Event'. The initiatives of this university club fit in well with my own goals and beliefs. I have been associated with EWB for two and a half years and am now the President of the Monash chapter of EWB.

What has been the most beneficial thing about being in EWB?
Since joining the organisation, I have had the opportunity to meet people from many different countries and their experiences have been inspiring. Being a part of EWB has been very rewarding. I have the prospect of one day travelling to a developing country to utilise my engineering skills in a way that will benefit disadvantaged communities. Since taking on the role of President, I have gained more confidence, leadership skills and am comfortable with public speaking. Such skills are essential across all professions.

Has it been easy to recruit students to EWB?
It has not been difficult to recruit students to EWB as many students have the desire to make the world a better place. At Monash, EWB offers many different projects for students to become involved, eg the Monash Computer Co-op and the Biodiesel Project. A lot of students are attracted to the projects because they give them the opportunity to develop practical engineering skills.

What did you choose to do the double degree of BMS and Eng?
I chose to study the double degree of Biomedical Science and Engineering because it combined all of the disciplines that I enjoyed learning in high school. There are some biotechnology units offered through the chemical engineering stream which have applications in the pharmaceutical industry, food processing industry and medical science, these units fit in well with the concepts taught in the Biomedical Science degree.

Each degree is unique and develops different skills, techniques and broadens my way of thinking. Studying a double offers more options in terms of employment; I can go into a field that utilises both degrees and fields that use the individual degrees.

What do you intend to do when you finish your studies?
When I finish my studies, I would like to travel to and work in a developing country for some time and when I come back, work in a field that allows me to apply skills from both degrees such as the pharmaceutical industry.

Afternoon tea for high achieving students

First-year students

Third-year students

First, second and third year biomedical science students who achieved outstanding results (straight HD's) in 2009 were invited to an afternoon tea at Joe's at the Campus Centre by the Head of School, Professor Christina Mitchell and the Course Convenor, Dr Yvonne Hodgson. Professor Mitchell congratulated the students on their performance, remarking that the school had been very fortunate in attracting such a high calibre of students. Dr Janet Macaulay and Joanne Waring also attended.

Top radiography students

Karli Creek

What originally interested you about radiography, and the Monash radiography course?
Radiography is a unique area of allied health which allowed me to pursue my interest in the areas of both healthcare and physics, while also permitting me to work closely with people and play an important role in their diagnosis, treatment and recovery. I also saw the flexibility and diversity of the job as a real bonus – I certainly don't have the temperament required for a 9-to-5 desk job! My degree allows me to work in a variety of institutions including trauma hospitals, specialty hospitals (eg the Royal Children's or the Royal Women's Hospitals), rural hospitals, private clinics etc.

Another big 'plus' is that the job is very travel-friendly – I can take my degree overseas and get full-time, part-time or locum work. The worldwide necessity of radiography also means that I should never be out of a job – as with most healthcare professions it's a very financially stable occupation.

How was your overall experience of Monash University?
I loved Monash Uni! Being a country kid, the environment allowed me to come out of my shell and experience and be a part of a world that was foreign to me. We're lucky to have so much camaraderie on campus at Monash!

How was your experience of clinical placements?
Clinical placements were certainly the highlight of my radiography degree; they are beneficial in so many ways.

In addition to putting my theoretical uni work into practice, they also allowed me to network, develop important contacts for future employment and, towards the end of the degree, exhibit my clinical skills to future employers – after all, radiography is a small world!

Did you join any clubs or get involved in any community groups during your studies?
During uni, I lived on residence at Mannix College – a home away from home, and a place whose praises I cannot sing loud enough. I was also a member of the 'Monash University Radiography Students Association' and 'Wildfire' (the Monash Rural Health Club).

Have you got a job since graduating?
Since finishing my formal studies, I am now working at the Alfred Hospital – and loving it!

What are you future plans, career or otherwise?
I'd love to go overseas at some point; explore the world and live in cultures completely different to our own.

I'm in a unique position that I can take my qualifications overseas and have the option of doing either full-time or locum work, which will allow me to practice all over the world.

Anastasia Castles

What originally interested you about radiography, and the Monash radiography course?
Radiography and medical imaging appealed to me, as it is a field that incorporates science, medicine and technology and is constantly changing. I felt the Monash Bachelor of Radiography and Medical Imaging course provided the ideal combination of academic and practical learning that would keep me motivated and enthusiastic for the four years I would be studying.

What were some aspects of the course that you particularly enjoyed (ie subjects, practicals, the teaching, social)?
Practical classes in first year (general radiography) and third year (ultrasound) were a particularly enjoyable part of the course. These classes gave us an opportunity to put into practice the theory we were learning in a supportive, friendly environment. Physics and anatomy lectures were also interesting and were run in such a way that questioning and discussion was encouraged. This meant that we were able to focus on areas that the class found more challenging and move at a pace that we were comfortable with.

Socially, the Radiography Ball was the highlight of each year. This event gave all radiography students the chance to dress up and have a great night!

How was your experience of clinical placements?
Clinical placements were a highlight of the course. From the first semester of first year we were given the opportunity to actively participate in radiographic/medical imaging examinations in the clinical setting,

generally being allowed to perform entire examinations under supervision.

This meant that we were well prepared for our professional clinical placement in fourth year and employment upon completion of the course. In second year I was given the opportunity to complete a clinical placement in Hobart with two of my closest friends... those were five weeks that I will never forget!

Did you join any clubs or get involved in any community groups during your studies?
Throughout my time at university, I continued to be involved in other activities, such as dancing and fitness, in order to maintain balance in my life. I was also a member of university groups, such as the Monash University Helenic Students' Society and the Monash Radiography Students' Association.

Have you got a job since graduating?
Since graduating, I have been employed as a radiographer by Symbion Imaging at The Northern Hospital, the radiology department where I completed my professional clinical placement. I am excited to be working with an amazing group of radiographers, including my mentor in radiography in angiography, who has taught me a great deal since my first clinical placement in first year.

Obituaries

Anne Martsi-McClintock – 4 May 1959 to 27 December 2009

Anne Martsi sadly passed away at Dandenong Hospital on 27 December 2009 after losing her battle with cancer. She was a valued and committed staff member who will be remembered for her happy nature and her willingness to help everyone in the teaching laboratories. She was loved by her co-workers and will be missed by many staff and students in the physiology department.

Anne Martsi, 50, worked at Monash for 26 years, beginning her career in the Department of Anatomy, working in the histology and electron microscopy laboratories. In the late 1980's, Anne moved to the physiology department, where she also provided specialised technical support to researchers. During this period, she also worked closely with Dr Lindsay Aitkin on auditory pathways in marsupials.

In 1997, Anne accepted a position in the physiology teaching labs, where she continued to work for 12 years. Anne became an invaluable resource and was knowledgeable in all matters related to physiology practical teaching.

She also had a great eye for detail, was organised, approachable and forward thinking. Anne's passing will be a great personal loss to all who knew her and importantly, a great loss to the running of the physiology teaching laboratories.

Anne leaves behind two daughters: Zoe, 17; and Melissa, 14. She was a devoted mother who spent many hours supporting her girls in every aspect of their lives, including their involvement in calisthenic competitions. Anne was a caring and supportive daughter to her own mother and a loyal and compassionate confidant to her friends, including many present and past members of the physiology department.

Stuart Hirst – 15 May 1964 to 26 December 2009

Monash lecturer and researcher Dr Stuart Hirst tragically passed away on Boxing Day. He was a valued colleague who will be missed greatly by staff in the Department of Physiology.

Stuart, 45, was an internationally recognised expert in the field of airway tissue remodelling and airway smooth muscle cell pathophysiology in asthma. He authored more than 50 research articles with over 1500 citations, and his most recent paper was published in PNAS in 2009. Stuart was the recipient of many prestigious awards during his career, including two Wellcome Trust Research Career Development Fellowships. He was a regularly invited speaker at international conferences and collaborated with staff at institutions including: the Woolcock Institute, University of Sydney, University of Melbourne, University of Glasgow, Cambridge University, Imperial College London, University of Groningen and University of Liege.

He was on the editorial boards of *American Journal of Respiratory Cell and Molecular Biology,* and *Pulmonary Pharmacology and Therapeutics*, and regularly served on international organising and abstract review committees for conferences and meetings in his field. Stuart was a passionate and meticulous researcher who strove for excellence and will be dearly remembered as a selfless collaborator, mentor and friend to his students and colleagues.

Stuart moved to Melbourne in late 2007, leaving his position as Associate Professor at King's College London to be with his partner, Dr Jane Bourke and her two children. Although he missed his own three children who remained in the UK, Stuart returned to visit them last year and his older son, Chris came to Australia for the first time last August. Stuart's outside interests included fixed-wing general aviation and precision kite-flying for relaxation; as well as reading biographies, natural history, maritime history, and the history of aviation and exploration. With Jane, Stuart embraced the Australian lifestyle, enjoying wine tasting, socialising, bush walking and wildlife viewing.

Stuart was an enthusiastic and innovative undergraduate and postgraduate teacher, having received his Postgraduate Certificate in Academic Practice from King's College in 2004. The scope and complexity of his teaching roles in physiology were evidenced by his duties as a lecturer, as a unit (PHY3072) coordinator and as principal convenor of the Honours program. He will be remembered by his colleagues for his warmth, intelligence, sense of humour and for his strong commitment to excellence in research and teaching at Monash.

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