

Food and Nutrition

School of Exercise and Nutrition Sciences
Deakin University

Number 1, January 2009

School of Exercise and Nutrition Sciences

Faculty of Health, Medicine, Nursing
and Behavioural Sciences
Deakin University
Burwood, Melbourne 3215

Telephone (03) 9244 4613

Facsimile (03) 9244 6017

Internet www.deakin.edu.au/hmnbs/ens

Head of School

Professor David Crawford

Course Coordinator

Associate Professor David Cameron-Smith

Deputy Course Coordinators

Dr Russell Keast

Dr Gie Liem

School Executive Officer

Louise Luscombe

Administrative Officer (Academic Programs)

Elissa Turnbull

Newsletter Editor

Dr Russell Keast

CONTENTS

Welcome	1
Alumni	1
Student news	2
Nanotechnology conference	3
School news	4
Food for thought	5
Publications in 2008 by Food and Nutrition staff	5

ISSN 1323-6806



F & N news

Welcome

Welcome to the first annual Food and Nutrition newsletter. The newsletter will be a source of who, when, where and why from the Bachelor of Food Science and Nutrition. In this and following newsletters we will highlight high achieving students, both undergraduate and postgraduate; feature Alumni events; get to know some of the academic staff a little better; and discuss some thought-provoking issues. Effective communication is an essential component of learning and this newsletter is one type of communication that we hope will keep you informed about Food Science and Nutrition at Deakin University.

As you will see throughout the newsletter, Food and Nutrition staff and students maintain high levels of achievement and continue to maintain excellence in teaching, research and service.

Dr Russell Keast

Editor (for the Food and Nutrition team)

ALUMNI

Ten Years of Bachelor of Food Science and Nutrition Graduates Sunday 18 May 2008

An afternoon reception was held at the Park Room, Amora Hotel Riverwalk, Richmond, to acknowledge that Deakin University had achieved the first 10 years of training Bachelor of Food Science and Nutrition graduates. The course commenced in 1996 and while a few changes have occurred since then the event was a great opportunity to see what graduates were currently doing job-wise and renew old acquaintances with staff and students.

The Amora Hotel Riverwalk was a perfect setting for the 10-year social reunion, with the room overlooking the Yarra River. In all, the event was well attended by 39 graduates, some of whom finished back in 1999 right through to the more recent graduates of 2008. It was a fantastic reunion, providing plenty of opportunity to be reacquainted.

To start the proceedings, Associate Dean International/National, Associate Professor Hilde Lovegrove, representing the Dean, welcomed the graduates. Mr Alan Mortimer, Managing Director of the Asia Pacific Blending Company and a member of the Food Science and Nutrition Advisory Board (FSNAB) provided an important message from the food industry: the need for graduates with industry-ready training, which Deakin University does extremely well. The industry association was also well supported by Mr Tony Marshall, Manager at Parmalat Pty Ltd and also a member of FSNAB. A PowerPoint presentation, 'Down Memory Lane', highlighting staff, events, course changes and students through the years was well appreciated by all.

The list of attendees also included Professor David Crawford, Head of School, plus most current academic staff. Apologies were raised from past academic staff including Ms Helen Devereaux, Associate Professor Gwyn Jones and Dr Stuart Johnson, who were staff members at the commencement of the course in 1996.

Many thanks to those who supported the event: Professor David Crawford, for support from the School of Exercise and Nutrition Sciences; Lyn Golder, Marketing Coordinator from the Faculty of HMNBS, for Faculty support; and to administrative staff, including former school staff member Ms Julie Asquith, for administration assistance in making this a very successful occasion. We now look forward to establishing more Alumni events in future.

Dr Stuart Smith

Senior Lecturer

School of Exercise and Nutrition Sciences

UNDERGRADUATE STUDENT SUCCESS

Two students in the Bachelor of Food Science and Nutrition, Joanne Kennedy and Hayden Thatcher, won the prestigious national Student Product Development award at the AIFST annual convention in Sydney in July. The students also won two industry awards from SPC Ardmona and Sensory Solutions, and the best poster award within the nutrition category in this competition. This is the second year in a row Deakin students have won the product development prize.

These student achievements highlight the high quality learning experience that students gain through Food Science and Nutrition at Deakin, especially in the unit HSN306 *Product Development and Processing*. Joanne and Hayden developed the winning product last year in this unit, with real-world industry experience.

After winning four awards, one of the winners, Joanne Kennedy, expressed her experience in the unit HSN306 and the AIFST competition:

The Student Product Development competition was an amazing experience and I am very thankful to Shirani for encouraging us to enter. I am also glad that the AIFST and sponsors have a competition that allowed us to attend a week-long convention, including networking functions, giving us access to world-class speakers and industry contacts. The work Hayden and I put into each proposal, the poster, presentation and tasting was extensive but well within our capabilities. I felt that the content and structure of HSN306 Product Development and Processing closely matched with competition requirements and so we were well prepared. I enjoyed the subject immensely and it, along with the competition, has helped me recognise the importance of working within a team and to each work to your strengths. The process of HSN306 and the convention and competition have personally given me an awareness of national and international trends in both food safety standards and the complexity and time-consuming nature of product development and processing. I also feel like I have had a jump start to my career by attending and presenting at the convention. We met some fascinating people, got plenty of constructive criticism and learned a little about the nexus between theory and practice in the industry. I feel relieved to have finished my studies and lucky to have finished on such a high in Sydney!

The unit chair of HSN306, Dr Shirani Gamlath, explained that this unit is structured to integrate knowledge in other units by identifying nutritional and health concerns in society, possible functional ingredients, quality and safety aspects, sensory evaluation, and processing innovation to develop innovative products for the health and wellbeing of the population.



Joanne Kennedy and Hayden Thatcher won the prestigious national Student Product Development award at the AIFST annual convention in Sydney in July

UNDERGRADUATE STUDENT PRIZES IN 2008

Winners from the Bachelor of Food Science and Nutrition (H315)

First year studies

Head of School Prize – Samantha Gagovska

The Pearson Education Award for Academic Distinction in Anatomy and Physiology – Samantha Gagovska

Second year studies

Clover Corporation Prize for the most outstanding student in HSN206 *Food Analysis and Quality Assurance* – Joint winners: Jessica Luck and Leanne McMahon

School Prize for most outstanding student in HSN201 *Principles of Nutrition* – Janet Baxter

Third year studies

Anadis Limited Prize for the most outstanding student in HSN304 *Food Biotechnology* – Alana Plymin

Cadbury-Schweppes Prize for the most outstanding student in HSN303 *Functional Foods* – Joint winners: Aimee Dordevic and Suriani Buang

Freedom Foods Prize for the most outstanding student in HSN303 *Functional Foods* – Joint winners: Aimee Dordevic and Suriani Buang

School Prize for most outstanding student in Third Year Food Science and Nutrition – Aimee Dordevic

The Food Science and Nutrition course staff wish to congratulate all prize winners.

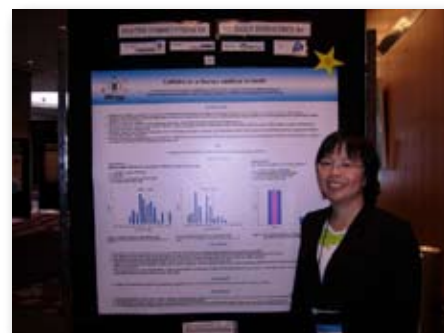
We look forward to presenting more prizes to worthy recipients from the Bachelor of Food Science and Nutrition program this year.

POSTGRADUATE STUDENT RESEARCH SUCCESS

Dhongsiri Sayomopak, PhD student

On 21–24 July 2008, Dhongsiri Sayomopak, a PhD student, attended the 41st AIFST Conference, held in Sydney. At the conference, she presented 'Caffeine as an additive agent in food', a poster based on her study.

The poster was judged to be the best at conference and she was presented with a certificate and a \$300 cheque.



Her findings demonstrate that caffeine, at the levels at which it is added to common soft drinks, suppresses the sweetness of sucrose, requiring more sucrose to be added to satisfy consumers. This has the effect of excessive energy intake, leading to obesity.

Gunveen Kaur, PhD student

Gunveen Kaur was selected as one of three finalists for the 2008 AusBiotech-GSK Student Excellence Awards (Victoria Division), which was sponsored by GlaxoSmithKline. As a result, she was invited to present her work before the Victorian Branch of the AusBiotech committee.

She was also presented with a certificate of recognition as a finalist in the 2008 AusBiotech-GSK Student Excellence Award during the annual ABSA Victoria BioCareers night held on 16 October at Melbourne Exhibition Centre.

Food and Nutrition

School of Exercise and Nutrition Sciences
Deakin University

INTERNATIONAL

International student perspective at Deakin University

My experience in being an international PhD student in Food and Sensory Science at Deakin University has broadened my mind and perspective in overseas studying.

English language is the major barrier for all students who are non-English speakers, including me, especially in written English. Students must acknowledge the need to constantly improve their English language skills to increase their ability to effectively learn, perform research and complete assignments. This is easier said than done!

I have listed a couple of my suggestions to help improve your English:

1. In times of stress you will often revert back to your primary language for communication – always try to speak English, it will help in the long term.
2. It is often easier to talk with friends who speak the same native language rather than speak in English. Even though it may be difficult, talk with your friends in English.

For new international students, Deakin International has a vital role in assisting them to settle down to their student life and get familiar with western academics. If you have difficulties in studying any subjects or with university life matters, I'd suggest that you visit the Deakin International office (Building 1a) and make an appointment with an International Student Adviser (ISA) to discuss any issues you may have.

Any students who participate in and graduate from international study will have better career opportunities. They will also be better equipped to survive in the competitive international environment.

Dhoungsiri Sayomopak, PhD student



F & N news

Nanotechnology conference

A review of a recent nanotechnology conference organised by Professor Andrew Sinclair, Chair of Human Nutrition and Director, Metabolic Research Unit.

Nanotechnology is an emerging science that refers to a field of fundamental and applied science concerning the control of matter on an atomic and molecular scale. It deals with materials and phenomenon at dimensions in the nano scale (below 1×10^{-9} m). Nanotechnology will facilitate the next wave of development and techno-scientific innovation across various fields, including agri-food systems. But nanotechnology raises many of the same issues as any new technology, including concerns about the toxicity and environmental impact of nanomaterials, potential health effects and speculation about various doomsday scenarios. These concerns have led to debate among scientists, as some believe that nanoparticles can be hazardous to health while others believe nanotechnology is a promising science.

The introductory talk by Dr Takuya Tsuzuki from Deakin University enlightened the audience about the basic understanding and meaning of nanotechnology. If we picture a golf ball and our earth, the golf ball is 100 million times smaller than the earth. A nanoparticle is 100 million times smaller than a golf ball. Dr Tsuzuki also shed light on the wide applications of this technology. In the food industry, nanotechnology has four broad applications: packaging (like gas barriers), quality analysis (nanosensors), food processing (nano-antibacterial knives) and food additives (diet supplements or nutrients with nanoparticles).

Continuing with the application of nanotechnology, Professor Peter Majewski from University of South Australia presented some of the work from his lab. He has been working on surface engineered silica (SES), which can be efficiently used to purify water and for fining of wine. It is a versatile and reusable technique; however, cost efficiency is still under question. Other speakers included Dr Tim Wooster (CSIRO) and Professor Harjinder Singh (Massey University, NZ) – they highlighted the use of nanotechnology to increase the uptake of various nutrients and bioactive compounds from processed foods. By harnessing some properties of nanoparticles, they can be used to encapsulate sensitive nutrients, increase the uptake of poorly soluble nutrients and reduce calorie intake by increasing gut digestion time. The use of nanoparticles in food has also raised questions regarding their toxic effects, as some of them could potentially cross the gut barrier intact. Nanoparticles can be of different size, shape, structure and material, which provides them with unique properties. There is a growing need to identify harmful nanoparticles and study their effects.

Associate Professor Paul Wright from Nano Safe Australia suggested that scientists working in this field should study the lifecycle of nanoparticles, identify harmful stages or hotspots and modify the particles before they become a product. Nano Safe Australia (commissioned in 2006 by Nanotechnology Victoria) is currently doing nationwide research and testing in nanotoxicology. Although there is no report of foods available to consumers containing nanoparticles, some nano-dietary supplements are available in supermarkets. Food Standards Australia New Zealand (FSANZ) is currently gathering information from all available scientific sources and has appointed a senior project manager and set up an in-house group to keep abreast of nanotechnology developments and respond to the situation appropriately.

Dr Craig Cormick from the Australian Office of Nanotechnology (AON) provided a brief overview of the consumer response to nanotechnology. Evidence suggests that expectations from this new science are high and concerns about the safety are moderate, but public knowledge about nanotechnology is still quite low. Dr Cormick and other speakers suggested that, with the collaboration of areas including research, regulatory bodies, government agencies and industry, the benefits from nanotechnology can be maximised and the risks minimised. This symposium proved to be an immense success and provided an excellent communication and discussion ground to scientists, their industry partners and the general public to understand the science of nanotechnology, its applications, possible health hazards and what is being done to tackle these health risks.

Professor Andrew Sinclair, President and trustee of the International Life Sciences Institute (ILSI), summarised the take home message that nanotechnology is a promising science and will continue to provide us with better innovations. Though the jury is still out on potential health risks involved with use of nanoparticles, work is being done to identify and tackle these risks.

The meeting was attended by more than 50 representatives from the food industry, academic institutions and government bodies in Australia and New Zealand.

SCHOOL NEWS

Professor David Crawford was appointed Head of the School of Exercise and Nutrition Sciences in February 2008. David has almost 30 years experience in population health research, having worked with the Epidemiology Program at the CSIRO Division of Human Nutrition, the National Centre for Epidemiology and Population Health and the Division of Epidemiology at the University of Minnesota. He is currently Director of Deakin's Centre for Physical Activity and Nutrition Research. He holds honorary appointments with the Cancer Council of Victoria, the Free University in Amsterdam and the University of Canberra.



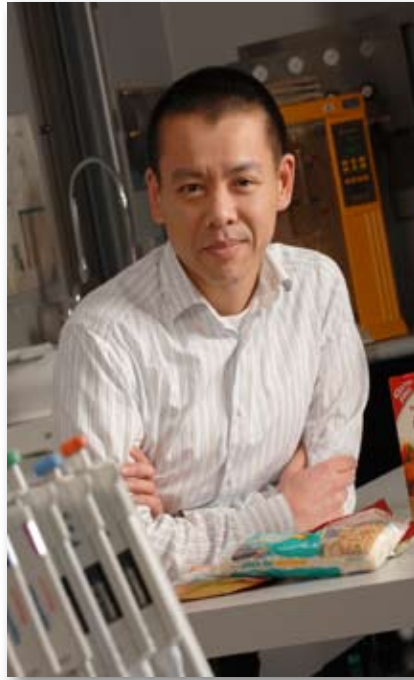
He has previously held a NHMRC Post-doctoral Fellowship, the Inaugural Heart Foundation Nutrition Research Fellowship, a NHMRC/Heart Foundation Career Development Award, and currently holds a VicHealth Senior Research Fellowship.

His research focuses on the behavioural, social and environmental influences on eating, physical activity and obesity. He has initiated a series of studies and is collaborating on others that are focused on understanding contextual influences on nutrition, physical activity and obesity among children and their families.



Associate Professor David Cameron-Smith was appointed course coordinator for the Bachelor of Food Science and Nutrition at the start of 2008

NEW STAFF PROFILES



Dr Gie Liem | May 2008

In October 2007 I applied for the academic position as Lecturer in Social and Behavioural Nutrition. Seven months ago I touched Australian soil for the first time. It has greatly impacted my private and professional life, and not only my life but also that of my wife and two children. The major challenge has been, and still is, to set up a social life in a country where you virtually know nobody. We gave up our home social life, security and jobs to go live in a country we have never been before. Braveness is not far from stupidity.

Before joining Deakin I worked as a consumer scientist and project leader at Unilever Research in the Netherlands. It was a great experience. I had the opportunity to lead a team consisting of psychologists and nutritionists. Moreover, I was challenged to try to understand marketers and the position of behavioural, sensory and nutrition science in a large food company. During that time my main focus was on consumer perceptions of salty taste and children's food choice behaviours.

I am educated as a nutritionist. During one of my undergraduate courses I chose to write an assignment on children's food choices. I have never lost fascination for this topic. For my MSc I decided to go to the US and conduct studies at the Monell Center in Philadelphia (1998), which is a world-famous institute in the field of smell and taste research. I focused on early flavour experiences of infants and their impact on development of taste perception and future food choices. Furthermore, I had the opportunity to learn from the greatest in the field. At that time, Russell Keast conducted his post-doctoral research at the same centre.

Given the excellent research environment of Monell I decided to do two years of my PhD research there and two years at Wageningen University. My research focused again on food choice and taste development of children.

By coming to Deakin I not only took a new step in my life, but also made a return to academic freedom and challenges. I can fully focus on my first love research-wise, the food choices of children. I am unit chair for several units which cover social and behavioural nutrition. The interaction with students is very motivating. For the next few years I aim to continue my research in the field of taste development and food choice of children and I will continue to improve my units.

I have met a couple of interesting people in past months. Every day I take my bike to work (I am still Dutch), have nice runs in the Melbourne area and enjoy life down under. After seven months I can almost say that things are back to normal. However, I think I will always keep on saying 'I moved to Australia and that is far from normal!'



Dr Susan Torres | October 2008

Dr Torres completed her PhD in October 2008. She investigated the interaction between diet, obesity and mood to stress response. A key finding was that modest weight loss improved blood pressure response to stress and this may have a favourable effect on cardiovascular disease risk. A second important finding was that a dietary pattern routinely recommended for blood pressure reduction (low-sodium, high-potassium) had a positive effect on general mood state. Dr Torres is currently a member of the Healthy Ageing research program at the Centre for Physical Activity and Nutrition Research in the School of Exercise and Nutrition Sciences. Her future research in the School will address how lifestyle interventions such as diet and weight loss can influence mood and physiological responses to stress, as well as investigating how chronic stress, using a model of chronic work stress, may be detrimental to health by promoting poor dietary choices.

Dr Torres chairs two undergraduate and two post-graduate nutrition units in the School of Exercise and Nutrition Sciences: Nutrition and Physical Activity Assessment, Nutrition Promotion and Communication, Population Nutrition Research Methods and Professional Practice in Core Competencies. She also coordinates the Dietetics Honours Program.

Food and Nutrition

School of Exercise and Nutrition Sciences
Deakin University

In mid 2008 we had a significant upgrade of the Food Laboratory. This follows on from the building of the Sensory Laboratory in 2006. The new food facilities are used extensively for teaching units such as HSN205 *Food Commodities*, HSN207 *Sensory Evaluation of Foods* and HSN306 *Product Development*.



Sensory Laboratory

FOOD FOR THOUGHT

Quotes

All animals eat, but we are the only animal that cooks. So cooking becomes more than a necessity, it is the symbol of our humanity, what marks us off from the rest of nature. And because eating is almost always a group event (as opposed to sex), food becomes a focus of symbolic activity about sociality and our place in society.

Robin Fox, *Food and Eating, An Anthropological Perspective*

Christ died for our sins. Dare we make his martyrdom meaningless by not committing them?

Jules Feiffer

Cheese – milk's leap towards immortality.

Clifton Fadiman

Joke

*What did one lab rat say to the other?
I've got my scientist so well trained that every time I push the buzzer, he brings me a snack.*

Web site

Food Scientist ranks #3 in 'cool' careers:

www.cnn.com/2008/LIVING/worklife/06/02/cb.cool.pay.jobs



F & N news

PUBLICATIONS IN 2008 BY FOOD AND NUTRITION STAFF

Adams NE, Bowie AJ, Simmance N, Murray M & Crowe TC. (2008). Recognition by medical and nursing professionals of malnutrition and risk of malnutrition in elderly hospitalised patients. *Nutrition & Dietetics*, 65, 144–150.

Cicerale S, Conlan XA, Sinclair AJ & Keast RSJ. (2009). Chemistry and health of olive oil phenolics. *Critical Reviews in Food Science & Nutrition*, in press.

Crisan M, Casteilla L, Lehr L, Carmona M, Paoloni-Giacobino A, Yap S, Sun B, Léger B, Logar A, Pénicaud L, Schrauwen P, Cameron-Smith D, Russell AP, Péault B & Giacobino J-P. (2008). A reservoir of brown adipocyte progenitors in human skeletal muscle. *Stem Cells*, 10 July. [Epub ahead of print.]

Farnfield MM, Trenergy C, Carey KA & Cameron-Smith D. (2008). Plasma amino acid response after ingestion of different whey protein fractions. *International Journal Nutrition & Food Science*, 8, 1–11.

Gamlath S. (2008). Impact of ripening stages of banana flour on the quality of extruded products. *International Journal of Food Science & Technology*, 43, 1541–1548.

Gamlath S & Ravindran R. (2008). Extruded products with fenugreek (*Trigonella foenum-graecium*) chickpea and rice: Physical properties, sensory acceptability and glycaemic index. *Journal of Food Engineering*, doi:10.1016/j.jfoodeng.2008.06.004.

Jayasooriya AP, Mathai ML, Walker LL, Begg DP, Denton DA, Cameron-Smith D, Egan GF, McKinley MJ, Rodget PD, Sinclair AJ, Wark JD, Weisinger HS, Jois M & Weisinger RS. (2008). Mice lacking angiotensin-converting enzyme have increased energy expenditure, with reduced fat mass and improved glucose clearance. *Proceedings of the National Academy of Science*, 105(18), 6531–6536.

Keast RSJ. (2008). Modification of the bitterness of caffeine. *Food Quality & Preference*, 19, 465–472.

Larsen AE, Cameron-Smith D & Crowe TC. (2008). Conjugated linoleic acid suppresses myogenic gene expression in a model of human muscle cell inflammation. *Journal of Nutrition*, 138, 12–16.

Lawrence M & Germov J. (2008). Functional foods and public health nutrition policy. In *The Social Appetite*. J Germov & L Williams (eds). Melbourne, Oxford University Press, 147–175.

Lawrence M & Yeatman H. (2008). Conceptualising the policy practice and behavioural research relationship. *International Journal of Behavioural Nutrition & Physical Activity*, 5, 16.

Lowe MR, Tappe KA, Annunziato RA, Riddell LJ, Coletta MC, Crerand CE, Didie ER, Ochner CN & McKinley S. (2008). The effect of training in reduced energy density eating and food self-monitoring accuracy on weight loss maintenance. *Obesity*, in press.

Morris MJ, Chen H, Watts R, Shulkes A & Cameron-Smith D. (2008). Brain neuropeptide Y and CCK, and peripheral adipokine receptors: temporal response to palatable diet induced obesity. *International Journal of Obesity*, 32(2), 249–258.

Murphy KT, Medved I, Brown MJ, Cameron-Smith D & McKenna MJ. (2008). Antioxidant treatment with N-acetylcysteine regulates mammalian skeletal muscle Na⁺-K⁺-ATPase alpha gene expression during repeated contractions. *Experimental Physiology*, 4 July. [Epub ahead of print.]

Palmeri G, Turchini G, Caprino F, Keast RSJ, Moretti V & De Silva S. (2008). Biometric, nutritional and sensory changes in intensively farmed Murray cod (*Maccullochella peelii peelii*, Mitchell) following different purging times. *Food Chemistry*, 107, 1605–1615.

PUBLICATIONS IN 2008

BY FOOD AND NUTRITION STAFF continued

Palmeri G, Turchini G, **Keast R**, Marriott P, Morrison P & De Silva S. (2008). Effects of starvation and water quality on the purging process of farmed Murray cod (*Maccullochella peelii peelii*). *Journal of Agriculture & Food Chemistry*, in press.

Prior LJ, Velkoska E, **Watts R**, **Cameron-Smith D** & Morris MJ. (2008). Undernutrition during suckling in rats elevates plasma adiponectin and its receptor in skeletal muscle regardless of diet composition: a protective effect. *International Journal of Obesity*, 26 August. [Epub ahead of print.]

Roberts NJ, Brockington S, Doyle E, Pearce LM, Bowie AJ, Simmance N, Evans S & **Crowe TC**. (2009). An innovative model for clinical education in dietetics. *Nutrition & Dietetics*, in press.

Sacks G, **Swinburn B** & **Lawrence M**. (2008). A systematic policy approach to changing the food and physical activity environments to prevent obesity. *Australia & New Zealand Health Policy*, 5, 13. [5 June 2008.]

Sacks G, **Swinburn B** & **Lawrence M**. (2008). Obesity Policy Action framework and analysis grids for a comprehensive policy approach to reducing obesity. *Obesity Reviews*, 26 August.

Stahl L, Weisinger RS, Begg D & **Sinclair AJ**. (2008). Role of omega 3 fatty acids in mood disorders. *Current Opinion in Investigational Drugs*, 9, 57–64.

Tassoni D, **Kaur G**, Weisinger RS & **Sinclair AJ**. (2008). Role of eicosanoids in the brain. *Asia Pacific Journal of Clinical Nutrition*, 17(S1), 220–228.

Trenergy KT, Carey KA, Farnfield MM & **Cameron-Smith D**. (2008). Aging is associated with altered JAK/STAT signaling. *Rejuvenation Research*, 11(4), 717–724.

Weijzen PLG, **Liem DG**, Zandstra EH & de Graaf C. (2008). Sensory specific satiety and intake: the difference between nibble- and bar-size snacks. *Appetite*, 50(2–3), 435–442.

Weisinger HS, Begg DP, Egan GF, Jayasooriya AP, Lie F, Mathai ML, **Sinclair AJ**, Wark JD & Weisinger RS. (2008). Angiotensin converting enzyme inhibition from birth reduces body weight and body fat in Sprague-Dawley rats. *Physiology & Behavior*, 18 March, 93(4–5), 820–825. [Epub 5 December 2007.]

MELBOURNE GEELONG WAFRNAMBDOOL

DEAKIN UNIVERSITY

2009 Courses in Nutrition and Food

- > Bachelor of Food Science and Nutrition
- > Graduate Certificate, Graduate Diploma and Master of Human Nutrition
- > Master of Dietetics (on campus only)

For more information phone +61 3 9251 7777
or email hmnbs-support@deakin.edu.au

The difference is Deakin **HEALTH**

Deakin University CRICOS Provider Code 01778B