

YSF@UWS Program

Wednesday 18 January – Friday 20 January 2012

University of
Western Sydney
Bringing knowledge to life



Proud Partners:



NYSF

Y o u t h S c i e n c e F o r u m

Team Building Made Easy

The YSF@UWS program starts with a team building session using purpose built facilities on campus, where students learn to work together in groups. This session incorporates problem solving tasks using real and imaginary ground-based obstacles that invite a small group to explore teamwork strategies and demonstrate for themselves the importance of planning, cooperation, and communication. This activity is a great way for students to get to know each other quickly and have a lot of fun at the same time.

Forensic Science and Crime Scene Investigation

Dr Glenn Porter and his colleagues will guide students through the interesting work of a crime scene investigator (CSI) through presentations and workshops. Students will work in groups to analyse evidence that will assist them to solve a crime. This workshop will also include information on collection of evidence for admission in court and interpretation of forensic evidence such as fingerprints, gun shots and body fluids. Techniques used by students will include forensic photography and state of the art forensic analysis using computer software for a range of investigations. A laboratory which displays crime scenes has been established to assist students to learn more about evidence collection and this will be demonstrated by staff and senior forensic science students.

Bringing Chemistry to Life

Associate Professor Roy Tasker and his colleagues will show you some of the amazing molecular events occurring in your cells, and ask the question – “What is required for a chemical system to be alive?”. In the laboratory you will study the most fascinating chemical reaction known, involving oscillating colour changes in space and time, and then isolate the most exquisite type of molecule in the universe from a strawberry.

Animal Science

Dr Jason Flesch will introduce you to some of the many snake and lizard species maintained at the UWS Reptile Facility that are used in teaching, research and demonstration. Reptiles are one of the most important, fascinating yet often misunderstood parts of our ecosystems, although in recent years, they are becoming more involved in the lives of everyday Australians – in a good way – as pets. So why would you want a lizard in your lounge room or a snake on your sofa? Come and see why not! This is a hands-on workshop that is sure to excite your passion for animal science.

Global Warming and Measuring Climate Change

Staff from the Hawkesbury Institute for the Environment will discuss the impact of climate change on Australian forests and ecosystems. This presentation gives a greater understanding of the impact of global warming and the effect that greenhouse gas emissions play in bringing about ecological changes. Professor Ellsworth will then introduce the Hawkesbury Forest Experiment in a workshop that will explain how scientific research is being conducted to investigate the effect that

variations to carbon dioxide levels in the atmosphere will have on Australian plants. The forest chambers that have been developed for this work are the only ones of their type in the world, and not to be missed by those interested in the topic of climate change.

Aspire Module 1: Communication Styles

Topics covered include:

- What is Communication?
- Types of Communication
- Communicating Differently (The DiSC Model)
- Barriers to Effective Communication
 - Communication Filters & Obstacles
 - Common Communication Filters
- Active Listening
 - Why Don't We Listen Better?
 - Ways of Listening
 - Reflective Listening

This session focuses on deepening our understanding of our own communication style and that of others, through the use of the DiSC Model; why communication is so important and the basic principles of effective communication. The DiSC Model identifies our preferred communication style, as well as how we communicate in normal situations and under pressure. Communication is a central part of our lives, professionally and personally. Verbal or written, non-verbal, intentional or unintentional, active or passive, communication is essential to almost everything we do. In fact, most of us spend between 50% and 75% of our days communicating in writing, face to face, inside our heads, by email or over the telephone. It is critical to our success and fortunately, is a skill we can all develop.

The Didedoo

A bonding cultural musical journal

Traditional Aboriginal boomerangs, didgeridoos and clave sticks (all hand made in Australia by Aboriginal community groups). The Human Rhythms facilitator will take the group on an interactive musical journey of traditional rhythm and dance, utilising Aboriginal instruments. Later as students are mesmerised by colourful stories of snakes, lizards, wombats and the illusive platypus (told by an Aboriginal elder) the students hand paint their instruments and take them home.

Modern Medicine

A visit to the state-of-the-art medical education and research facility gives students an insight into medical physiology and computer diagnostics. Students run tests on themselves using simulation equipment and case study analysis. Discussions with academic and research staff gives students a better understanding of the work carried out by frontline practitioners developing new medical approaches for improvement of human health. The medical School at UWS is training medical students to meet the challenges of the future by using a new and innovative approach to medical problem solving. For students interested in a career in medicine this part of the YSF program will be very enlightening.

Aspire Module 2: Winning Together Teamwork

Topics covered include:

- Teamwork
- Why Teams are Good
- Characteristics & Behaviours of Highly Effective Teams
- Why Teams Don't Work
- Sabotage Strategies of Dysfunctional Teams
- Teamwork & Trust

Teamwork is a critical factor in the success of organisations. The ideal team is a miracle of autonomous, cross-functional efficiency which shares knowledge and creates solutions. It cuts costs and it is closer to the client than paint. This session explores why teamwork is important and the differences between highly effective teams and dysfunctional teams. Even dysfunctional teams can turn themselves around simply by identifying what is

“limiting its potential and performance”, and then “un-limiting itself”. It is about recognising we are all different and understand things differently, and therefore are continually miscommunicating. “Getting Back” to being a good team is a simple concept, but it will take hard work and focus.

We need to unlearn many bad habits, assumptions, policies and procedures. It is also important to note that one of the key motivators for the newest generation in the workplace, Generation Y, is teamwork, which they define as “a sense of belonging”.

Anatomical Mysteries

The study of anatomy is an integral part of the training in medicine and the allied health professions. The anatomy laboratories in the School of Medicine are designed to provide students with access to human tissue, anatomical models and computer-based anatomical material. The demonstrations in the anatomy facility will guide you through the different regions of the body, and focus on those organs that everyone has but are not sure what they look like or exactly where they are. Current medical students at UWS will discuss what it is like to study medicine, and why they chose UWS Medicine.

Aspire Module 3: Leadership Revelations

We know that effective and inspiring leadership motivates employees to stay with an organisation, and makes all the difference to the bottom line. But what makes an effective and inspiring leader? And what leadership capabilities does an organisation need to succeed in its market? This session explores Australian views of the characteristics of effective leadership, across multiple business types

from entrepreneurs, small business, large private and public organisations, across different industries.

“Leadership is critical to the health, wellbeing and success of organisations. Leaders, more than any other group have the opportunity to influence the direction and culture of the enterprise. It is the application of leadership that deserves more scrutiny” (*Professor Ed Davis, Dean of Economics and Financial Studies, Macquarie University*).

Enter Nature's “Nano World” using the Scanning Electron Microscope

Students will have the opportunity to get some hands on experience using the Scanning Electron Microscope (SEM), looking into the “nano world” of insects and plants. Students will be able to compare the magnification and resolution of the SEM with a normal light microscope, and also take some memorable pictures of such fascinating things as the eye and antenna of an ant, and of the wonderful nano-structure of spider silk. These pictures will then be printed in both colour and 3D, and students can keep them as a memento of their visit to the “nano world”!

The Exciting World of Nanomaterials

Nanotechnology is the science of understanding the structure and behaviour of chemical materials at the atomic or molecular level. Our scientists will take students to this frontier of modern science by showing them some of the latest research being carried out at UWS on carbon nanotubes and related graphene materials. The structures of these new materials will be examined under one of the most powerful Scanning Electron Microscopes available, which can reach magnifications of over 1 million times and hence ‘almost see’ the atoms, so be prepared to be impressed!

Separation Science

Separation science is used to separate the components of a mixture so that the individual chemical compounds may be analysed and identified, and our UWS scientists are at the forefront in such research. Some of the analytical techniques commonly used are gas chromatography (GC), high performance liquid chromatography (HPLC) and gel electrophoresis (GEP), which can be used for the analysis of drugs, proteins and other interesting chemical compounds. Students will see these instruments operating, and also perform their own experiment using paper chromatography to separate the pigments in spinach!

Using X-rays and Electrons in the Search for New Minerals

One of the most active areas of research at UWS is in Geochemistry and Mineralogy, where during the past few years many new mineral species have been discovered and reported. Students will visit our research laboratories where our geoscientists will show them how minerals can be initially identified under the normal light microscope and then fully analysed and characterised using state-of-the-art instruments such as the X-ray Diffractometer and the Electron Microprobe. Each student will be given an attractive mineral specimen as a memento of their visit!



YSF@UWS Program 2012

TIME	WEDNESDAY 18 JANUARY 2012 – HAWKESBURY CAMPUS	
7:00-8:30	Registration & book into rooms.	
8:30-9:00	Official Welcome – Dean of Science. Camp information – Prof Rob Mulley.	
9:00-10:30	Team building exercises – Jack Wolfenden.	
10:30-11:00	Morning Tea.	
11:00-12:30	Forensic Science and Crime Scene Investigation.	Bringing Chemistry to Life.
	Animal Science.	Global Warming and Measuring Climate Change.
12:30-1:30	Lunch.	
1:30-3:00	Aspire module 1/Communication Styles.	
3:00-3:30	Afternoon Tea.	
3:30–5:00	Forensic Science and Crime Scene Investigation.	Bringing Chemistry to Life.
	Animal Science.	Global Warming and Measuring Climate Change.
5:00 -6:30	Free time.	
6:30 – 7:30	Evening Meal - Yarramundi House	
7:30-10.30	Human Rhythms – The Didedoo.	
	Prepare for bed.	

TIME	THURSDAY 19 JANUARY 2012 – CAMPBELLTOWN CAMPUS	
7:30-8:30	Breakfast	
8:30-10:00	Aspire module 2 /Winning together team work.	
10:00-10:30	Morning Tea.	
10:30 –12:00	Bus trip to Campbelltown campus.	
12:00-1:00	Lunch.	
1:00-2:30	Group 1: Anatomy.	Group 2: Medical Physiology and Computer Diagnostics.
2:30-4:00	Group 2: Anatomy.	Group 1: Medical Physiology and Computer Diagnostics.
4:00-4:15	Afternoon Tea.	
4:15-6:00	Bus trip to Hawkesbury via Werrington North Astronomy Observatory.	
6:00-6:30	Free time.	
6:30-7:30	Evening meal	
7:30-10:30	Disco. Jukebox and Karaoke.	
	Prepare for bed	

TIME	FRIDAY 20 JANUARY 2012 – PARRAMATTA CAMPUS	
7:30-8:30	Breakfast	
8:30-10:00	Aspire module 3/Relationship revelations.	
10:00-10:15	Morning Tea.	
10:15 –11:30	Bus trip to Parramatta campus.	
11:30-1:00	Enter Nature's "Nano World" using the Scanning Electron Microscope.	The Exciting World of Nanomaterials.
	Separation Science.	Using X-rays and Electrons in the Search for New Minerals.
1:00-2:00	Lunch.	
2:00-3:30	Enter Nature's "Nano World" using the Scanning Electron Microscope.	The Exciting World of Nanomaterials.
	Separation Science.	Using X-rays and Electrons in the Search for New Minerals.
3:30-4:00	Afternoon Tea.	
4:00-5:00	YSF – Closing ceremony, Human Rhythms "Drumming Up a Storm", an unforgettable musical journey. "Thank you" and farewells.	
5:0pm	YSF@UWS program 2012 concludes.	

For more specific information on the YSF@UWS program:

Call Professor Robert Mulley at UWS on (02) **4570 1210** or Lindy Pearson on (02) **4570 1307**.

To register your interest, email l.pearson@uws.edu.au

Program Cost: \$440 (incl. GST)