**THE INAUGURAL WORLDWIDE UNIVERSITIES NETWORK (WUN) SUMMER SCHOOL AT THE UNIVERSITY OF WESTERN AUSTRALIA (UWA):**

**SOIL SCIENCE AND CLIMATE CHANGE**

The Summer School includes three days at UWA, a four-day “Critical Zone Soil Science and Climate Change” Workshop and Retreat at UWA’s Future Farm, and a five-day facilitated Writing Retreat in UWA’s Albany campus.

**Dates** – 29th January to 13th Feb 2014

**Location** – UWA, UWA’s Future Farm, and Albany

The south-west of Western Australia is a recognised global biodiversity hotspot and the only one located on the Australian continent. This part of Australia has undergone significant climate change since the 1960’s with an average increase in temperature of 0.60C and an associated 25-30% reduction in rainfall. The reduced rainfall has led to an over 40% reduction in surface water runoff and inflows to dams and considerable pressure on water supplies. The Town of Albany is located in the ‘hottest’ region of the biodiversity hotspot with over 5000 species of vascular plants in areas of fragmentation. The Albany region is characterised by a variety of land uses including broad acre farming, forestry, livestock and mining. The matrix of a global biodiversity hotspot, measurable climate change and the range of land-uses makes the Albany region an interesting place to study adaptation to climate change.

**Overview of the Soil Science workshop and retreat**

This workshop will bring together 20-25 graduate students – leaders of the next generation - from Worldwide Universities Network (WUN) member universities in Australia, New Zealand, the Netherlands, Norway, Canada, China, the UK and the US together with up to a maximum of 10 US National Science Foundation (US-NSF) funded North American students to share their global perspectives on responses to climate change.

The graduate students from a wide range of scientific disciplines will contribute their diverse disciplinary expertise and understanding as developed within their different national contexts to address landscape-soil-related climate change issues that are fundamental to the future of the world. The conference will enable approximately 25 graduate students, selected because of the excellence of their research and its relevance to the topic, to present, engage, discuss, progress their thinking and produce a journal article.

During the four-day workshop and retreat the students will present their own research work, attend Master Classes given by UWA Professors about their cutting edge environmental research, including strong soil-landscape and soil biology components as well as actively engage in inter-disciplinary debates and discussions; tour the UWA Future Farm; undertake primary research in the field; and work in themed groups to make initial plans for one or two jointly authored publications based on the primary research.

UWA will also organise a number of group social activities and tours to create a friendly and fun environment for students to network.

**Overview of the Writing Retreat**

The Writing Retreat is designed to provide students with a supportive space in which to prioritise writing and thinking about research. The Retreat aims to prepare students to successfully negotiate the process of writing throughout their PhD candidature and beyond.

Students will arrive at the Summer School with, at the minimum the data for, but preferably the first draft of, a section of their thesis or a paper for publication.

A highlight of the retreat will be the students’ meeting with the Editor of a leading journal. Emeritus Prof Bob Gilkes, will address the group about the possibility of dedicating a special issue of the journal to their research on ‘soil science responding to the challenges of climate change’. The Editor will outline the journal’s specific needs and requirements and these will guide the students’ writing. Students whose research does not fit in with the theme of the Special Issue will receive valuable advice on preparing their publications for their target journals.

Dr Cecily Scutt, an accomplished writer and facilitator, who has expertise in the use of creative techniques that lead to writing with new insights and fresh inspiration, will help to shape and integrate the participants’ writing towards the predefined Journal’s Special Issue and other targeted journals.

The Retreat will incorporate workshops, works-in-progress presentations and individual consultations with UWA’s Graduate Education Officers, Workshop facilitator, disciplinary leaders, and UWA research support staff within an interdisciplinary, peer supported environment.

**Timetable**

Thursday 29th January - arrival in Perth and transfer to St Catherine’s College or alternative residential college accommodation

Friday 30th January - UWA - campus tour, orientation, lectures from leading UWA researchers, lab tours (details to follow).

Saturday 31st January – Free morning to tour Perth. Mid afternoon - travel to Future Farm. Future Farm orientation and set up camp.

Sunday 1st Feb - UWA Future Farm

Geology, relief development and weathering history of the landscape. Exposure to the different soil parent materials from granite, dolorite, laterite as well as aeolian, colluvial and alluvial sediments.

Monday 2nd – UWA Future Farm

Near surface geophysical techniques such as electric resistivity tomography (ERT), ground penetrating radar (GPR) and shallow seismic refraction (SSR) frequently used in soils and geomorphic studies will be introduced in the field. Students will run their own survey lines and generate first data on site. Initial data analysis will take place on the evening.

Tuesday 3rd – UWA Future Farm

From the top of the laterite outcrop down to the saprolite - soil development in ancient soil parent material. Based on initial geophysical results students will dig their own soil profiles along a catena that will allow an insight of the “old weathering profile” of the Western Australian landscape. Students will describe their soil profiles and take samples for later lab analysis.

Wednesday 4th – UWA Future Farm

Soil biology students will return to UWA for soil biology experiments – sampling techniques, edaphon determination, preparation for DNA-sequencing theory and practice.

Thursday 5th – Depart Future Farm – afternoon at UWA (accommodation: St Catherine’s College)

Students will split into groups according to their interests. Initial soil analysis will be conducted, geophysical field data will be finalized and interpreted and soil biological data will be elaborated. Initial soil-landscape concepts will be developed and ideas of a joint publication can be discussed.

Friday 6th Feb – UWA (accommodation: St Catherine’s College)

Activities from previous day continue as well as lectures from leading UWA researchers (details to follow).

Saturday 7th – Free day (accommodation: St Catherine’s College)

Sunday 8th Feb – Travel to Albany Writing Retreat

Monday 9th – Albany Writing Retreat - includes three early morning tours of local places of interest, two group workshops, facilitated group meetings and considerable quiet time devoted to writing. Details will follow.

Tuesday 10th – Albany writing retreat

Wednesday 11th – Albany writing retreat

Thursday 12th – Albany writing retreat

Friday 13th Feb - Morning summary session and return to Perth. End of Program.

Participants are most welcome to remain in Perth (at their own expense) to continue their research and collaborations.

**Budget** (for 15 WUN participants)

WUN member universities will cover the full costs of flights, airport transfers (around $100 total), insurance, occasional meals costs in Perth and Albany, and any personal purchases and activities not outlined above.

The costs of the Future Farm Workshop and Retreat, the Writing Retreat, accommodation (at UWA, the Future Farm, and Albany), most meals, and the day tour of Perth will be covered by UWA/WUN.

**Application process**

WUN member universities are invited to shortlist up to three candidates.

* Application deadline – September 1st 2014

The summer school planning group at UWA (Peter Davies, Judy Berman, Deirdre Gleeson and Matthias Leopold) will select 15 WUN summer school participants.

* Applicants notified – September 15th 2014

**Selection criteria**

1. PhD or postdoctoral research in a disciplinary area which is relevant to the Summer School program of soil science and climate change (one page maximum). You may like to outline:
   1. How will participation in the Summer School benefit your research training and personal development?
   2. How will participation in the Summer School benefit your university and how you will contribute to the summer school group?
2. Academic excellence – please include any publications, conference papers and awards or prizes and any other relevant information (one page maximum).
3. A description of the data that you will have ready to work on at the Writing Retreat (half a page maximum).
4. Letter of Recommendation from an academic supervisor (one page max).