University of Adelaide presents

RAD UNDERGRAD

HOST LIST

2018

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This list shows which postgraduate students are available to host an undergraduate for a range of activities from meeting with them to talk to actually helping them with their experiment. Please pick 2-3 postgraduates you would like to talk to that are offering what you would like (see what they're available for) and send Beth Lovey an e-mail (beth.loveys@adelaide.edu.au) with the subject title: **Rad Undergrad** stating what it is you are looking for. She will help find a time that suits you both for what you want!

Available for Shadowing/Experiments

Abdeljalil Elhabti

Abdeljalil.elhabti@adelaide.edu.au

3rd Year PhD Student

Plant Genomics Centre

Research Topic: Wheat tolerance to drought and high temperature

About Me: My work aims to understand what makes some wheat plants tolerate the combination of drought and heat stress and produce grains under harsh conditions. The aim is to identify novel physiological traits that can assist breeders in selecting tolerant wheat varieties. We grow plants in state-of-the-art platforms to accurately monitor plant water use, water flow and leaf gas exchange.

Research Techniques Used:

- DroughtSpotter (The Plant Accelerator)
- Gas exchange system
- Water flow system
- Hydraulic instruments
- Colorimetric assays (enzyme activity, sugar content)

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Alicia Merriam

alicia.merriam@adelaide.edu.au

1st year PhD student

Waite Main Building

Research Topic: Dispersal dynamics, seed biology and management of two herbicide-resistant weeds (*Sonchus oleraceus* and *Lactuca serriola*)

About Me: I'm from Canada but have dual citizenship with Australia and came here in 2015 to reconnect with family and do a PhD. My undergrad and honours were in plant ecology and I worked for the weed ecology lab at the Canadian department of agriculture during uni. Now I'm doing a PhD on weed ecology and herbicide resistance and like how it includes both ecology and agriculture. Two of my biggest passions are plants and art - I almost went to art school instead of studying science! I'm happy with my choice but enjoy art as a hobby.

Research Techniques Used:

- Field work (in-crop weed management trials, weed surveys and plant tissue sampling)
- Pot trials (herbicide resistance screening, dose response experiments, germination and seedbank persistence trials)
- Lab work (PCR and genetic sequencing)
- Mapping and spatial analysis using ArcGIS
- Data analysis using R

I am available to:

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2. Have students shadow for a day/half a day
3. Have students help with an experiment

*Shadowing and student help for an experiment will depend on the timing of the student visit but I have a couple experiments in mind that might be suitable so I'm sure we can work something out.

Daniel McKay

daniel.mckay@adelaide.edu.au

1st year PhD student

Plant Research Centre

Research Topic: Investigating Cation Chloride Cotransporters (CCCs) in plants

About Me: I am a local student who moved into plant research for Honours after doing a Bachelors in Molecular Biology with a human perspective at North Terrace. The goal of my project is to uncover the role of cation chloride cotransporter proteins in plants as CCC knockout mutants suggest they play an important role.

Research Techniques Used:

- Microscopy (immunolabeling, dye staining, fluorescent markers and phenotyping)
- Image analysis through imageJ
- Various osmotic stress assays

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Dayton Bird

Dayton.bird@adelaide.edu.au

1st year PhD student

Wine Innovation Centre

Research Topic: Female germline formation during plant ovule development.

About Me: I am a domestic student and have completed a Bachelor of Science (Biomedical) at North Terrace followed by an Honours in Plant Science at Waite campus. My PhD is focused on female germline development in plants, which is major step required for the production of seed. My project will be investigating the genetic and molecular inputs that contribute to correct ovule development and pathways involved with female germline development and differentiation.

Research Techniques Used:

- PCR, gel electrophoresis
- Microscopy
- DNA extractions
- Plant phenotyping

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day

Deborah Devis

Deborah.devis@adelaide.edu.au

3rd year PhD student

Plant Genomics Centre

Research Topic: Evolutionary and functional analysis of rice pollen allergens

About Me: I am in my third year of my PhD and the focus of my research is on the genetics of pollen genes. Some of the techniques I do regularly are PCRs, Gel electrophoresis, Microscopy, In Situ hybridization, CRISPR mutation and pollen phenotyping. I also actively enjoy volunteering for the Why Waite program and often run or help with running DNA pracs for high school students. Since I am in my final year, I don't always have a lot of lab work to do, but I would love to share the times I am in the lab regardless.

Research Techniques Used:

- PCR, Gel electrophoresis
- Microscopy
- In situ hybridization
- CRISPR mutation
- Pollen phenotyping

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day

Emma Aspin

emma.aspin@adelaide.edu.au

1st Year PhD Student

Waite Building

Research Topic: Ecological interactions between two natural enemies of the light brown apple moth (LBAM)

About Me: I'm an international student (UK!) on a Joint PhD scheme between the University of Adelaide and the University of Nottingham. I'm studying the interactions between two parasitoid wasp species that both prey on a pest that is prevalent in SA vineyards; the light brown apple moth. I'll be starting my experiments soon so any help would be appreciated! ☺

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Jakob Schulz

jakob.schulz@adelaide.edu.au

1st Year PhD Student

Wine Innovation Central

Research Topic: Wheat root responses to alkaline conditions.

About Me: I completed my undergraduate degree in biotechnology at the University of Adelaide majoring in biochemistry and genetics. I then came to Waite campus for honours where I studied biofuels from alternative feedstocks. I am currently studying wheat roots and their ability to adapt to various abiotic stresses (in particular alkaline sodic soils) through root exudates. These root exudates include a wide range of compounds with many functions, however in general they serve to condition the roots immediate environment (the rhizosphere) to favour the plants growth. I am looking to characterise the chemical profile as well as the resulting root morphology from the high pH.

Research Techniques Used:

- Hydroponic/ Aeroponic plant growth
- Root phenotyping
- HPLC/ GC-MS
- Microscopy

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Kara Levin

kara.levin@adelaide.edu.au

2nd year PhD student

Plant Genomics Centre

Research Topic: Wheat Genetics and Nematode Resistance

About Me: I am an international student (from America) and am studying two different aspects to my PhD project. One is working with wheat breeding and genetics in order to uncover a region or gene that is responsible for a resistant trait against cereal cyst nematode (CCN). The other is understanding the biology behind interactions of the nematode and its host wheat in order to uncover possible resistance mechanisms.

Research Techniques Used:

- PCR, Gel electrophoresis
- Genotyping with robots
- DNA Extractions
- Microscopy

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Melanie Ford

melanie.ford@adelaide.edu.au

1st Year PhD Student

Wine Innovation Centre

Research Topic: Root mucilage and abiotic stress resistance

About Me: I'm an international student from Seattle, USA studying the goo (mucilage) that comes out of plant roots. I'm using Australian native and introduced plants to explore what the goo is made of and how it differs between species. Additionally, I'm looking into how root mucilage impacts the ability to tolerate climate change related stress including drought and salinity.

Research Techniques Used:

- Microscopy
- RNA and protein extraction
- HPLC
- Infrared Spectroscopy

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Suzanne Balacey

Suzanne.balacey@adelaide.edu.au

2nd Year PhD Student

Plant Research Centre

Research Topic: Plant volatile signalling in response to drought stress in Planta

About Me: I am an international student (from France) and I am studying a possible communication between plant experiencing drought stress. With a specific set-up including individual plant chambers, I am looking into the physiology parameters of the plants (grapevine and Arabidopsis thaliana) as well as the emission of volatiles in the air.

Research Techniques Used:

- Plant physiology instruments (LIcor, ADC IRGA, porometer, pressure bomb)
- GC-MS for volatile analysis

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students shadow for a day/half a day
3. Have students help with an experiment

Ying Meng

ying.meng@adelaide.edu.au

2nd Year PhD Student

Plant Research Centre

Research Topic: The Role of GABA on plants under abiotic stress (salt, drought and hypoxia)

About Me: I am a second year PhD candidate in School of Agriculture, Food and Wine. My research is focused on GABA's role on plants under stress, especially on root growth and morphology. With other PhDs who also work "underground", we are all Groot Buddies. Currently I am using both *Arabidopsis* GABA mutants and wildtype (Col-0 background) to discover the story behind a phenomenon that be seen obviously or not by eyes. The mutants included GABA-depleted lines: *gad1, gad2-1, gad1/2/4/5*, GABA-T deficient line: *pop2-8*, GAD2-overexpression lines: *B33, B97*.

Research Techniques Used:

- R Software
- Phenotyping
- Root Analysis

I am available to:

1. Answer questions via email/ set up a meeting to chat
2. Have students help with an experiment

Available for Email Correspondence

Jia Zhou

Jia.zhou@adelaide.edu.au

2nd year PhD student

UNSW

Research Topic: The impact of gut microbiome on Australian cane toad invasion

About Me: An international student from China.

My research interests are: (1) how diet and other factors change gut microbiome; (2) how gut microbiome changes invasive behaviour; (3) novel methodology to age wild cane toads

Research Techniques Used:

- Field work and wild animal collection,
- Skeletochronology,
- 16s rRNA sequencing analysis: DNA extractions, library preparation (PCR)
- bioinformatics analysis (R).

I am available to:

1. Answer questions via email (currently stay in Sydney, otherwise I would love to meet in person) or chat through skype.

Qi Wu

qi.wu@adelaide.edu.au

1st year PhD student, Waite Main Building

Research Topic: Molecular epidemiology and physiology of Shiraz Disease with an emphasis on Grapevine virus A.

The main concept of my PhD project is to study the molecular epidemiology of Shiraz Disease (SD) under Australian local conditions using Next Generation Sequencing (NGS). In Australian vineyards, SD is one of the most severe virus diseases, which is threatening Shiraz production and reducing Shiraz wine quality. South African scientists have claimed that SD (in South Africa) has been always associated with Grapevine virus A (GVA) and Grapevine leafroll-associated virus type 3 (GLRaV-3). However, in other parts of the world, no disease symptoms of GVA-infected vines have been reported. In Australia, based on 20 years of grapevine virus testing results, I have noticed that our situation is similar to South Africa but not exactly the same. Australian SD is not only limited to the mixed infection of GVA and GLRaV-3, but also sometimes GVA occurs on its own or it is co-infected with other leafroll viruses (e.g. GLRaV-1 or 9). To study which pathogens are responsible for SD, there is a need to obtain and analyze the comprehensive genome sequence data of various strains of GVA and leafroll viruses.

About Me:

2017-now: PhD student; 2013-now: Research assistant
2010-2012: The University of Adelaide. Master of Plant Health and Bio-security
2004-2008: South China Agricultural University. Bachelor of Plant Protection

I'm interested in grapevine pathology and virology, especially on develop and validate Metagenomic NGS into a molecular diagnostic tool for the local wine industry. I have more than 5 years' experience in general grapevine virology and virus disease management. In 2016, as a member of Waite Diagnostics (now become AWRI virus testing group), we have detected the exotic Grapevine Pinot gris virus and reported it to SA Biosecurity and published a peer-reviewed paper in Virus Genes. Over the past five years, I have published eight conference papers at international plant virus conferences and two journal articles in 'Grapegrower & Winemaker'. I'd like to help growers to manage viral problems in their vineyards. To serve the growers better, I would like to increase my knowledge, especially in the area of NGS and bioinformatics. I'm hoping to become an expert in the field of grapevine virology and be able to provide advice and essential research in this area to benefit the industry and safeguard the biosecurity of Australian vineyards.

Research Techniques Used:

- DNA/RNA extraction
- RT-PCR
- grapevine tissue culture and virus elimination

I am available to:

1. Answer questions via email/ set up a meeting to chat