Basic information

Letter to: School of Biological Sciences, University of Queensland

Scholarship: [Earmarked scholarships scheme to support Category 1 project grants](https://scholarships.uq.edu.au/scholarship/earmarked-scholarships-support-category-1-project-grants)

Supervisor: [Andrew Letten](https://biological-sciences.uq.edu.au/profile/7095/andrew-letten)

Co-advisor: [Dr. William Ludington](https://bse.carnegiescience.edu/dr-william-ludington) (Carnegie Science, USA)

Future Research

Field: theoretical ecology, microbial ecology

Topic: understanding the role of resource fluctuations in structuring microbial communities

Outline of the research plan: see detailed information in the file “Research outline” in the email I’ve sent you

Background of this position

Andrew has proposed a project and the title of the project is my research title. He got the grant and is able to support a PhD student (my scholarship). However, Andrew promised me I have high flexibility to do what I really want to do (see my research outline) just make sure those things are in the framework of the research topic.

Advantages

**Undergraduate: have basic experience in microbial ecology and community ecology as well as getting molecular techniques related to microbiology**

* Having independent research experience in microbial ecology.
* Getting an “Undergraduate research fellowship” from the National Science and Technology Council. The topic is “*Investigation on the gut bacterial community of the lychee stinkbug (Tessaratoma papillosa) and its effect on host fitness*”.
* Getting the Best Presentation Award at the 9th International Conference of Clinical Plant Science
* Having wet lab experience in microbiology.
* Acquired basic knowledge about numerical methods in community ecology and basic programming skills.

**Master: advanced training in community ecology**

* Investigated how the landscape affects the local species richness of woody specialists in the subtropical montane cloud forest of Taiwan (Master thesis).
* Attained programming skills in geographic information systems (GIS).
* Understanding theory about numerical methods in community ecology and programming skills.
* Other skills: acquiring fieldwork techniques of vegetation survey, obtaining knowledge of plant functional traits, and experience in empirical traits measurements and analysis.

**Research assistant: applying past experience (microbial ecology, community ecology, and molecular technique) to the work**

* **Applying molecular technique, and community data analysis skills that I have:**

Involved in the project “*The temporal decay trajectory of plant-soil microbe interactions and its effects on plant community structure*”, and responsible for DNA extraction, library preparation, and bioinformatics analysis of next-generation sequencing as well as greenhouse experiment.

* **Applying fieldwork experience, molecular technique, and community data analysis skills that I have:**

Designed a new project investigating the soil microbe community of bird’s nest fern (*Asplenium nidus*) to understand how the microbe community change along different ages of the host (bird nest’s fern). Responsible for field sample collection, DNA extraction, library preparation, and bioinformatics analysis of next-generation sequencing as well as data analysis.

* Gaining experience in theoretical ecology

Built a theoretical model to investigate how host-microbiome associations differ from classic metacommunity systems due to host behavior.

**Characteristics that benefit this project**

* Having experience in community ecology, microbial ecology as well as theoretical ecology
* Having molecular technique, bioinformatic analysis, data analysis skills, and programming skills (R and Python)
* Willing to learn new things
* Willing to challenge myself