

PhD Research Projects: Development and validation of next generation microalgae growth systems for high-value product development from wastewater

ABOUT THE PROJECTS

Southern Cross University, with funding and support from Australian Algae Services and the Marine Bioproducts Cooperative Research Centre (MBCRC), seeks expressions of interest from prospective PhD candidates to work on two projects related to the cultivation of microalgae in the context of a circular economy.

Commercial microalgae production targets the growing markets for omega-3 fatty acids and non-animal protein ingredients. Current commercial production systems use open raceways, despite low productivity and large energy, water, and land requirements. The overarching objective of this research is to design, test and validate microalgae production as perfusion-based biofilms, to convert nutrients from agricultural and industrial wastewater into high-value products. We are looking for two PhD candidates to work on projects related to this objective. The first project will focus on the cultivation and selection of heterotrophic species while the second project will focus on photoautotrophic species. Both students will work on the testing and validation of a new perfusion-based biofilm microalgal production system.

The PhD projects will involve laboratory experimentation, pilot-scale testing, sample collection and analysis, modeling and other data processing, and publication of scientific papers related to the research. Students will engage closely with industry partners and will spend three months undertaking a paid research internship with the industry partner.

Successful candidates will receive the University's tax-free annual stipend of \$29,863 AUD for 3 years and 3 months. Students will also receive an additional industry top-up scholarship of \$8,000 per annum for the duration of their projects, bringing the annual combined stipend to \$37,863. International students can also apply for a tuition fee waiver.

ABOUT SOUTHERN CROSS UNIVERSITY

Southern Cross University is a young and ambitious Australian university, powered by passion to deliver the best learning, teaching and research possible. Our graduates stride a global stage with confidence as proud alumni. Studying at Southern Cross combines a rare privilege of being surrounded by ambitious students, amazing and dedicated colleagues and an environment of stunning natural beauty. We create and apply knowledge in partnership with our communities in fields that are regionally relevant and globally significant. Southern Cross University was ranked as one of the Top 200 Young Universities in the Times Higher Education World University ranking (2023) and received the highest rank of "well above world standard" in 14 key research disciplines in the most recent (2022) national research excellence assessment, including Environmental Science and Management, Earth Sciences, and Resources Engineering and Extractive Metallurgy.

Candidates will be based at Southern Cross University's principal campus in Lismore (near Byron Bay), in the Northern Rivers of New South Wales, Australia. Lismore is just two hours drive from Brisbane, and a little over one hour from the Gold Coast. The Northern Rivers region is a great place to live, with a sub-tropical climate, some of the best beaches and surfing in the world, great fishing and scuba diving, and breathtaking wilderness areas. Added to this, the quality of life in the region is high and the cost of living relatively low.

HOW TO APPLY

Applicants must have a Bachelor degree with Honours in a relevant discipline, or a Masters degree with at least a 25% research component. Applicants whose first language is not English are also required to meet English Language Proficiency requirements (an International English Language Test Score (IELTS) Academic (or equivalent) equal to or above 7.0, with a minimum 7.0 in writing and no other band less than 6.5).

Interested applicants should send a CV and short (< 1 page) statement highlighting their research background and interests with respect to the criteria above to Dirk Erler (dirk.erler@scu.edu.au). Shortlisting will commence on **19 Feb 2024** and will continue until the positions are filled. Only shortlisted applicants will be notified.