

Faculty of Engineering

ASPIRE Summer Research Program 2026-2027

Project Title: Predicting water insecurity under a changing climate

Supervisor(s): Anna Lintern

Department: Civil and Environmental Engineering

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Website profile of project supervisor: <https://www.monash.edu/engineering/annalintern>

Objective

To develop a model that will predict water quality in rivers across Victoria under a changing climate.

Project Details

Climate change is upon us. The most recent research has shown that rivers will change significantly due to climate change. Countless policy documents and federal reports (e.g., the most recent National Climate Risk Assessment from 2025) have also indicated that there will be an increasing risk of water insecurity under a changing climate. But we have very little understanding which areas will face the highest risk. This inability to predict the most vulnerable rivers to climate change is crippling our ability to adapt and reduce future water insecurity risks.

Water quality is a crucial component of water security. Our inability to adequately predict the impacts of climate change on river water quality was noted as a key problem in the National Climate Risk Assessment.

This project attempts to make a first step to solving that problem. We will adapt models that have been previously developed by Dr Lintern and her colleagues, to predict future riverine water quality – accounting for future climate change. Ultimately, the goal of the project is to have a map showing the most vulnerable rivers in Victoria under a changing climate.

Project Timeline

[illegible]

<i>climate change on water quality</i>										
<i>Conceptual model of spatial differences in climate change impacts on water quality</i>										
<i>Adaptation of existing statistical model to account for climate change processes</i>										
<i>Model testing</i>										
<i>Prediction of water quality</i>										
<i>Write conference paper/poster/journal paper, wrap up</i>										

Prerequisites

Students should be comfortable with coding in Python, Matlab or R – or willing to become comfortable with coding during this research placement.

Whilst not necessary, it would be of great benefit if students have completed ENE1621, CIV2263, ENE2268, or CIV3285.

Student Placement Agreement

A student placement agreement must be signed by the project supervisor and the student prior to commencement of the ASPIRE program.

[LV0554-72741 ASPIRE Program Co-Curricular-Student-Placement-Agreement-Short-term.docx](#)

Additional Information

It is recommended that applicants reach out to the supervisor (Dr Lintern) to discuss the project further before applying.

Students will be placed in the Green Infrastructure and Water Quality group during the research placement. They will be given the opportunity (and are encouraged) to participate in group meetings and gatherings.

Submit as a word document - no more than one page long.