PhD. Scholarships - Engineering Research

Two PhD scholarships are currently available within the Department of Civil Engineering at the Clayton campus, Monash University for suitable candidates to study towards a PhD.

The Project

"Sources, sinks and processes of faecal microorganisms in the Yarra River estuary".

This project aims to understand and reduce the public health risk of aquatic recreation in the Yarra River estuary. Several key objectives have been identified: (1) investigate the factors which control the level of microorganisms in the Yarra River Estuary, (2) investigate the actual human health risks (and reductions after mitigation) of aquatic recreation in the Yarra River estuary and (3) based on the above understanding, identify appropriate mitigation methods and locations for targeted trials to help improve the recreational quality of the estuary. For more information on this project, please visit: http://www.watersensitivecities.org.au/programs/implementation-models/associated-publications/sinks-and-sources-of-faecal-micro-organisms-in-the-yarra-river-estuary/.

The Opportunity

The project is funded by the Australian Research Council as part of the ARC Linkage Project scheme (LP LP120100718). The project will run for three years.

PhD 1. Dynamics of faecal contamination in urban estuaries

A series of laboratory experiments and field campaigns are envisaged to explore how faecal microorganisms are behaving in the estuarine system. Survival, shock, settling and subsequent resuspension of microorganisms in the estuary should be studied to determine the true significance of these processes; for the first time in urban estuaries, these three processes will be investigated for both faecal indicators and pathogens. The student will need a strong background in microbiology (or a related field) and either formal training, general experience or an interest in water engineering.

PhD 2. Monitoring and modelling faecal contamination levels in urban estuaries

This will involve modelling the key sources, sinks and processes of indicators and pathogens in the Yarra River estuary. The student will develop a predictive model which represents microorganism behaviour in the estuary and use the data collected as part of the wider project to calibrate and validate this model. The microorganism model could be coupled with a hydro-dynamic modelling tool which has been setup to represent the hydraulics of the Yarra River estuary. The student will need a strong background in engineering (or a related field) and either formal training, experience or a demonstrated interest in microbiology and computer-based modelling.

Enquiries

Dr David McCarthy, Department of Civil Engineering, 03 9905 5068

Applications
Applications should include a cover letter specifying interests, qualifications and experience as it relates to the research project. Your curriculum vitae should include employment history, publications, and the names and contact details of three referees. Please also attach a copy of your academic transcripts.

Send your application to david.mccarthy@monash.edu.

Closing Date

Saturday 31 March 2012