

Subject: Ph.D. opportunities, ARC Centre of Excellence for Coral Reef Studies

The [ARC Centre of Excellence for Coral Reef Studies](#) (Townsville, Australia) is seeking outstanding PhD students with strong quantitative skills to work with [Prof. Graeme Cumming](#) and collaborators on two closely related projects. Please state the position name when enquiring or applying.

Position #GC1: Spatial tradeoffs, Ostrom's SES framework, and the application of game theory in urbanising landscapes

The goal of this project is to explore how feedbacks between pattern-process interactions across an urbanising landscape might both lead to and respond to spatial heterogeneity in ecosystems and ecosystem service provision. At its core will be understanding and simulating social-ecological interactions and decisions, in a game theoretic context, with games being played out in space and using Ostrom's SES framework to provide the basic model structure.

Urbanisation can be viewed as a process through which members of a growing human population increasingly prioritise non-ecosystem services over ecosystem services. This trend is accompanied by population densification, an upscaling of both demand and ecological impacts (based on the increase in the total area of agricultural production that is required to support the urban population), and a disconnection of people and ecosystems. In particular, the candidate will seek to understand (i) how the urban-rural interface organizes itself, and whether its formation in space follows naturally from simple 'first principles'; (ii) whether and how landscape heterogeneity, such as local differences in agricultural potential of soils, influences the pattern and speed of urbanisation; and (iii) whether, and how, cooperative or defective interactions between adjacent communities can influence the formation of the urban to rural interface in developing cities such as Bangalore (Bengaluru) in India.

This project is undertaken in collaboration with researchers at the Universities of Kassel and Gottingen, in Germany, and at the University of Bangalore. Although the student will be based at JCU, we anticipate that the candidate will be co-advised by [Kerstin Wiegand](#) (modelling) and [Stephan von-Cramon Taubadel](#) (economics) at Georg-August University in Gottingen. The project is fully funded by the DFG through project FOR2432. For more information, please visit <http://www.uni-kassel.de/go/for-2432>

Position #GC2: Social-ecological dynamics in the context of coral reef ecosystems

Funding support is available for an excellent PhD student to work on social-ecological dynamics in the context of coral reef ecosystems. Several different project foci are available, including but not limited to the following:

(1) conservation management networks in (and relating to) marine protected areas; (2) cultural service provision by coral reef ecosystems; or (3) the resilience of reef-dependent island communities. These projects will all involve field work and quantitative, social-ecological analyses relating to coral reef ecosystems. The focus may be more strongly social, economic or ecological, depending on the interests of the candidate.

General

- Applicants must have completed a First Class Honours or Master's degree and have a strong quantitative background (or be willing to obtain one) as well as research experience in a relevant field.
- Both projects will offer substantial opportunities for travel, field work, and modelling.
- PhD scholarship funding will be for three years.
- Applicants must be available to commence studies in 2016.
- The stipend rate in 2016 will be \$A30,000 p.a.

Additional information

Requests for information about the research projects should be sent to [Professor Graeme Cumming \(Graeme.Cumming@jcu.edu.au\)](mailto:Professor.Graeme.Cumming@jcu.edu.au) .

To apply

Expressions of Interest providing a CV, statement of research interest, and cover letter addressing suitability for the scholarship must be sent to Jennifer.Lappin@jcu.edu.au by **6 April 2016**.

Other opportunities to undertake postgraduate research at the ARC Centre of Excellence for Coral Reef Studies can be found [here](#) .

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ARC Centre of Excellence for Coral Reef Studies

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