

POSTGRADUATE FUNDING OPPORTUNITIES
Department of Anthropology

The Department of Anthropology is keen to hear from students interested in the following research project and associated interdisciplinary PhD scholarship, which is tenable for 3 years from 1st October 2010. The award will provide a fee waiver at the Home/EU postgraduate research rate and a tax free maintenance grant of at least £11,000.

Joint PhD in Anthropology & Mathematical Sciences: 'Cultural Influences on the Population Dynamics of Disease and Health-Related Behaviour'

Supervisors: Dr J Kendal (Anthropology) and Professor B Straughan (Mathematical Sciences)

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This interdisciplinary PhD project will develop mathematical models informed by anthropological theories of cultural change to predict population dynamics of disease and health-related behaviour. Where possible, these models will be tested against real data and may be complemented by behavioural experiments of cultural evolution (e.g. Mesoudi & Whiten 2008). This work addresses issues of importance to human welfare and will contribute to our understanding of human behaviour and disease evolution. The research will focus on two main topics:

1. Disease Treatments: Complementary medicines and traditional remedies represent more than US\$60 billion/annum, yet there are serious doubts about the safety of many treatments. Cultural transmission of treatments is a major factor that can influence treatment popularity and efficacy (Tanaka, Kendal & Laland 2009). Mathematical and computational models will investigate how cultural transmission biases influence the spread of treatments, and how treatment efficacy influences disease evolution (gene-culture coevolution, e.g. Boni & Feldman 2005).

2. Addictive Behaviour: Addictive behaviour including alcoholism, smoking, drug use and high-fat diets all result in a huge cost to both the addicts and the health services. Recent work has shown how the population dynamics of addictive diseases can be examined using epidemiological models (Mulone & Straughan 2009). Mathematical and computational models will investigate the effects of cultural transmission biases on the spread of addictive behaviour. Temporal effects including delays between trait adoption and illness, and between treatment and relapse will be examined.

The student should have a strong background in mathematical biology, a keen interdisciplinary interest, and a willingness to use both theoretical and empirical methodology. The student will have a supportive research environment to develop an interdisciplinary knowledge base of mathematics and anthropology while developing highly sought-after skills for quantitative analyses of social and cultural population dynamics. In addition to the supervisors' expertise in cultural evolution, gene-culture coevolution and mathematical modelling of disease, the student will benefit from consultation with members of the Centre for the Coevolution of Biology and Culture, the Evolutionary and the Medical Anthropology research groups, the Numerical Analysis group and the Wolfson Research Institute.

Boni MF. Feldman MW. 2005. *Evolution*. 59: 477-491.
Mesoudi A. and Whiten A. 2008. *Phil. Trans R. Soc. B*.363: 3489-3501.
Mulone G. Straughan B. 2009. *Mathematical Bioscience*. 218: 138-141.
Tanaka MM. Kendal JR. Laland KN. 2009. *PLoS ONE*. 4(4): e5192.

Applications

Applicants wishing to be considered for the studentship should make an application to the University by Friday 19th March 2010 by completing an on-line application form at <http://www.dur.ac.uk/postgraduate/apply/>. References and supporting documentation should be sent directly to the Department of Anthropology by the above deadline. Please indicate that you are applying for the interdisciplinary PhD scholarship. Interviews will take place between 26 -27th April 2010.

Candidates must have an MA/MSc in a relevant discipline (or equivalent experience or training), two good academic references and evidence of meeting the University's competency criteria in English language. Applicants are advised to contact supervisors as above to discuss the research proposal.

For further information please contact Kate Pedley, Postgraduate & Research Administrator, kate.pedley@durham.ac.uk or 0191 334 1608 in the Department of Anthropology, Durham University, Dawson Building, South Road, Durham, DH1 3LE, UK.