

Department of Sociology
Faculty of Arts and Human Sciences
University of Surrey

Three Fully Funded PhD Studentships

The Department of Sociology invites applications for three PhD studentships associated with the interdisciplinary research project ERIE (Evolution and Resilience of Industrial Ecosystems), a joint venture with the Departments of Mathematics and Computing and the Centre for Environmental Strategy (<http://erie.surrey.ac.uk>).

The doctoral students will be part of the ERIE team that is using two case studies to explore a crucial aspect of the UK economy: the ways in which firms are interdependent. The case studies concern the phosphate cycle (the ways in which phosphates are mined, used, recycled and discarded), and the industrial ecosystem in the Humber region.

The three PhD projects are:

1. Emergence and immergence in industrial ecosystems

This project will focus on how both formal and informal structures, on the one hand, emerge from links between industrial units and from interactions among their members and, on the other hand, how such structures shape the dynamics of industrial areas. Industrial areas such as the Humber case study area have multiplicity of formal bodies at various levels, from the very local to regional and national, and also a plethora of trade associations, interest groups, trade union branches, and so on. In addition, there are informal links of friendship and kinship. Understanding how these structures arise and their effects is important for guiding the development of the area towards a more sustainable future.

The project will draw upon interview and documentary data already gathered, but will require the collection of further ethnographic and historical data from South Humber Bank and elsewhere, and their analysis using ideas and concepts drawn from both sociology and complexity science.

2. Participatory modelling

ERIE is building computational models to help understand the dynamics of the two case studies. For example, it is creating an agent-based model of the energy flows between firms in the Humber area, and a network model of global phosphate flows. It is also experimenting with participatory model building, in which stakeholder representatives and project members together develop and refine a model, with stakeholders contributing their domain expertise and project member providing modelling expertise. As a tool, participatory modelling has links to foresight techniques and to action research and also to the use of 'serious games'.

The aim of this project is to review, synthesise, experiment with and develop participatory modelling as a technique appropriate for use by those concerned with policy in industrial ecosystems. The project will extend the work already underway with stakeholders in the Humber area, and then develop and test participatory tools and techniques for the phosphate cycle case study.

3. Models in policy making

Models are increasingly being used to inform public sector decision-making, but we know little about their role: who uses models, what kinds of models are used, for what ends, how the outputs of models are interpreted and by whom, the relative importance of model-based conclusions and other inputs into the policy-making process, and so on.

This project aims to increase our understanding of the role of computational models in particular, but also other types of models, in UK policy-making. It will also help to recommend

the types of models that are most useful or influential to policy makers. The project will track a few representative models from conception through to use (or non-use) to identify their impact. The work will involve interviewing policy-makers, analysis of policy documents, and reviewing the characteristics of policy models.

The three PhD projects will contribute to the wider aim of the ERIE project, which is to embed cutting-edge complexity science methods and techniques within prototype computational tools that will provide policymakers with realistic and reliable platforms for strategy-testing in real-world socio-economic systems. ERIE aims to generate theoretical insights and outcomes with practical value for stakeholders, and offers the opportunity to test scientific insights in practical business contexts to promote regional sustainable development.

The successful candidates will join the vibrant multidisciplinary environment of the large ERIE team, including four post-doctoral researchers, nine PhD students, and eight Investigators from the Centre for Environmental Strategy, and the Departments of Sociology, Mathematics, and Computer Science.

Funding:

These 3-year studentships are funded by the University of Surrey, as part of its contribution to ERIE. They cover Home/EU tuition fees and a maintenance grant of at least £13,890 per annum. Information about eligibility criteria for Home/EU fee status can be found at: http://www.ukcisa.org.uk/student/info_sheets/tuition_fees_ewni.php#

Entry requirements:

Essential

- Masters level degree with a research methods component in Sociology, Geography, Economics, Political Science, Complexity Science, Environmental Science or a related subject
- Aptitude and enthusiasm for doing interdisciplinary research
- Interest in and ability for working in a collaborative environment
- Excellent oral and written communication skills

Desirable

- Knowledge of computational modelling and simulation
- Knowledge of qualitative and quantitative social science

Applications:

Informal enquires can be made to Professor Nigel Gilbert (n.gilbert@surrey.ac.uk).

To apply, please send:

1. A covering letter highlighting:
 - a. Why you are interested in doing a PhD
 - b. Which research topic of the three you are interested in and why
 - c. Which specific skills and aptitudes you feel you would bring to the research project and the ERIE team
2. A copy of your current CV including the names of two referees
3. A sample of your academic writing
4. The abstract from any research dissertation you have completed

to Richard Sandiford by email to r.sandiford@surrey.ac.uk or by post to:

Postgraduate Administrator, Department of Sociology, University of Surrey, Guildford GU2 7XH, United Kingdom. Tel: +44(0)1483 689453

Closing date for applications: 9am Monday, 5 March 2012

Interviews for shortlisted candidates: Tuesday 20 March 2012