

Michaelmas Term 2008

CABDyN SEMINAR SERIES
Saïd Business School, University of Oxford



Convenors:

Felix Reed-Tsochas, *James Martin Institute, Saïd Business School*

Eduardo López, *Saïd Business School*



Our meetings intend to provide a forum for rigorous research (in a broad range of disciplines) focusing on complex adaptive systems, using methods and techniques such as agent-based modelling and complex network analysis. Since potential areas of application for such approaches can be located across the social, natural and engineering sciences, our aim is to involve participants from a wide range of departments in Oxford. We welcome talks which focus on particular areas of application and associated technical issues, but also encourage contributions which address more fundamental conceptual or mathematical problems. The CABDyN Seminar Series is one of the activities of the CABDyN Complexity Centre (<http://sbs-xnet.sbs.ox.ac.uk/complexity/>).

Tuesday 25th November, 12.30 – 2.00 pm

Reception Room, Saïd Business School

Dr Daniel Stouffer
Integrative Ecology Group, Estación Biológica de Doñana, Spain

‘An understanding of food-web persistence from local to global scales’

ABSTRACT

Food webs provide a thorough representation of the trophic interactions found in an ecosystem. Understanding food web stability is a long-term objective of ecology because of its relevance in predicting the persistence of biodiversity. Much of our understanding of food-web stability and persistence stems from investigations of smaller sub-webs, called trophic modules, which are easier to experiment with in the field and laboratory or more analytically tractable in theory. These studies provide a foundation for the stability of individual modules and a means to try to scale-up and infer how entire food webs behave as a whole. Recent top-down approaches have investigated how empirical food-web structure is built up from constituent modules.

We integrate such bottom-up and top-down approaches in order to better understand the relationship between the modules which make up a network and that network's long-term persistence. We find that there is not a direct relationship between the persistence of modules in isolation and their effect on persistence of a complete food web. We do find, however, that there is strong correlation between whether the presence of individual modules increase or decrease entire food-web persistence and whether those same modules appear more or less frequently in empirical food webs. As a consequence of our study, food-web stability and persistence can be regarded as an excellent example of the whole being greater than the sum of its parts.

Sandwiches and drinks will be provided

For further information contact info.cabdyn@sbs.ox.ac.uk

Seminar webpage: http://sbs-xnet.sbs.ox.ac.uk/complexity/complexity_seminars.asp