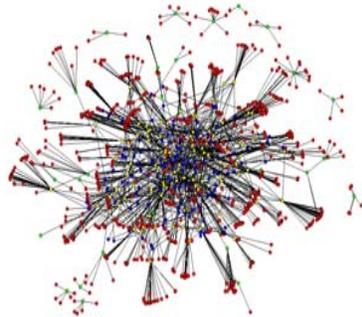


Four-Campus Video-Conference Series, 2006-7 f-w-s Human Sciences and Complexity



May 25, 2007: Friday, 1:30-3:00 telecast from UCI 3030 Anteater Center

Carl Simon, University of Michigan

Department of Mathematics, and Director, Center for the Study of Complex Systems

“Simplicity in Complexity: Complex Systems Approaches Across Disciplines”

<http://eclectic.ss.uci.edu/~drwhite/center/cac.html#Simon>

Abstract: Carl Simon will talk about the University of Michigan approach to the study of complex systems. Decision-makers and policy-analysts who fail to take a systems approach risk long-run disastrous consequences, as illustrated by environmental disasters like DDT, policy disasters like the Vietnam War, and business disasters like the current crunch in the US automobile industry. A systems approach requires the understanding that an object, organization, or policy under consideration is a component of a larger inter-connected network, that changes in the object under consideration can have repercussions in distant components of that network, and vice versa. A systems approach usually entails constructing and analyzing a model of the overall system, with particular attention to the interactions of its components. Such a model can be conceptual, mathematical, statistical, or even a computer simulation. In general, one starts with a simple model with strong simplifying assumptions about the components and their interactions, for example that the components and their links are all alike and are in equilibrium. But, while the K.I.S.S. principle reminds us to "Keep It Simple, Stupid," Einstein added an appropriate caution: "But not too simple!" When can one ignore differences among individuals? Do the ways that individuals connect to one another make a difference? Does it matter whether or not the world is in some simple static equilibrium or is changing dynamically? When and how does a modeler include learning and adaptation to feedback? Why do we separate microbiology from macrobiology, say, or microeconomics from macroeconomics? Systems approaches -- simple and complex -- in fields as diverse as economics, ecology, biology, epidemiology, and traffic engineering share some remarkable commonalities, so that techniques and insights in one discipline can shed light on the operations of others.

Video Conference Locations for Participants

UCLA: 285 Powell Library

UCI: 3030 Teaching, Learning & Technology Center, corner E. Peltason and Anteater

UCSD: 260 Galbraith Hall

UCR: A139 Olmsted Hall