

Graduate Program in Social Dynamics and Evolution (MBS)

Graduate students apply to the Graduate program in Mathematical Behavioral Sciences. The MBS research focus group in Social Dynamics and Evolution is developing several emphases within the program. The first to be developed is the *Graduate Emphasis in Social Dynamics and Evolutionary Anthropology*. It emphasizes: Mathematical and statistical modeling, network analysis, molecular anthropology, population genetics inferences, the cultural transduction of stress, proximal effects in coevolution, adaptive potential, content analysis. Additionally, our general emphasis on computational and research methods can strongly prepare graduate students for teaching and employment opportunities in both academic and applied careers. Graduate students at UCI may satisfy the requirements, in addition to those of MBS by completing the three-quarter Proseminar and two additional courses, with the approval of the graduate advisor. Other emphasis under development may include disciplinary topics such as *Social Dynamics, Decision Analysis and Evolutionary Game Theory* and/or *Social Dynamics, Evolution, and Sociology*. There may be other offerings for 2004-5 than those with course descriptions listed below. Contents of this page as a program are pending approval by MBS.

Graduate Emphasis in Social Dynamics and Evolutionary Anthropology

Proseminar I **Networks and Social Evolution**

Proseminar II **The Human Story**

Proseminar III **Dynamic Processes**

Molecular Anthropology and Evolutionary Medicine – (Wallace)

Medical Anthropology – (Chavez)

Foundations of Evolutionary Anthropology – (White)

Global Networks – (White)

Network Theories of Social Structure – (White)

Social Network Analysis – (Boyd, Butts, Faust)

Analysis of Relational Data – (Romney)

Cognitive Anthropology – (Romney)

Economic Anthropology – (Burton)

Research Design – (Burton)

Seminar in Cognitive Anthropology – (Colby)

Evolutionary Game Theory – (Skyrms)

Bayesian Statistics – (Stern)

Dynamics and Decision Analysis – (Saari)

Course Offerings, current and 2004-2005

Proseminar in Anthropological Sciences: Social Dynamics and Evolution

Anthro. 289A. **Networks and Social Evolution** (White, Bell, Boyd; cross-listed with Soc Sci 249A, Special Topics in Social Networks)

Anthro. 289B **The Human Story: from Genes to Blogs** (Colby, Nardi, Wallace; cross-listed with Soc Sci 239A, Special Topics).

Anthro. 289C. **Dynamic Processes** (Saari, Skyrms, Narens [a member of the anthro department must be officially involved, perhaps, Bell as convener]; cross-listed with Soc Sci 239B, Special Topics).

Spring 2004 Course Descriptions

Winter 2004. **Global Networks**. Network analysis is used to study the global economy, world-system/civilizations and processes of globalization, including migration and capital flows, in relation to inequality, standards of living, political systems, social movements, revolutions, and violence. Civilizational and deep histories are examined in a network-evolutionary perspective.

Spring 2005. **Introduction to Anthropological Sciences**. The interdisciplinarity of the Anthropological Sciences is examined from the perspective of how biological, archaeological, linguistic, social and cultural research fit together with systematic databases, simulation and modeling in the study of human evolution, history and contemporary problems and cultures.

Fall 2004 Course Descriptions

Anthro. 289A. **Networks and Social Evolution** (White, Bell, Boyd). Networks provide a metric, a model, and a dynamic for studying the evolution of human society, organizations, institutions, civilizations, and futures. Access to numerous databases is provided to encourage empirical analysis tied to dynamical and structural theory. Time-series networks databases such as the modern world economy (trade networks), national input-output matrices, interorganizational collaborations, co-citation networks, cities and transport networks, kinship-occupational-spatial networks for bands, nomadic societies, agriculturalists, contemporary communities, industrial elites and political elites are used to identify network principles (e.g., finding the dynamical pumps that provide through network interaction the food and energetic engines to support social systems, the information flows for cultural systems, the cognitive and decision-making links in the human/environmental interface, migration and transport effects). Dynamic stabilities and sources of instability are analyzed for civilizational and cultural systems. The development of network theory is also considered in relation to the contributions of simulation models, evolutionary game theory and nonlinear dynamical modeling.

Winter 2005 Course Descriptions

Anthro 289B. **The Human Story: from Genes to Blogs** (Colby, Nardi, Wallace). Social dynamics and human evolution from prehistory to the present. Topics covered will include early human migrations as determined from studies of mitochondrial DNA and environment (Wallace); the development of language and the prehistorical spread of language families (Colby but preferably Kaufman); the interactive dynamics of early expressive forms in cave art, myth, and folktales (Colby); evolutionary implications of what we now know about stress response, caloric restriction, and mitochondrial origins of disease and longevity (Colby but preferably Wallace or jointly); and the implications of human – computer interaction, artificial intelligence and blogging (Nardi). A principal focus is on a hands-on methodology, such as how to do a distributional analysis in language and folktales and how to use a computer program for content analysis, as well as findings over the analytical techniques.

Spring 2005 Course Descriptions

Anthro. 289C. **Dynamic Processes** (Saari, Skyrms, Narens, Bell). To be written. Includes dynamics and evolutionary game theory, decisions, and evolutionary processes.