



DEPARTMENT OF
BIOLOGICAL SCIENCES

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**1117 BISC 859 –
Special Topics I: Modern Human Phylogeography**

Convenor: Dr. Arne Mooers

This is a special topic graduate course, open to all Graduate students in good standing, and others by invitation.

Duration: September 12 – December 1, 2011

Credits: 3

Vector: 2*1.5 hour lectures and labs/wk, T/Th 1330-1500

Venue: The IRMACS Centre, ASB 10908

Evaluation: attendance, presentation, final project

Prerequisites: STAT 650 (Statistics) and BISC 806 (Evolutionary Theory) or equivalent recommended but not required. Experience in the 'R' statistical language a plus. Interest in evolutionary theory, human evolution, phylogenetics, phylogeography, human ecology, historical linguistics expected.

Fees: Registered graduate students in good standing pay no extra fees. Undergraduate and visiting students, please contact the Dean of Graduate Studies for information regarding fees.

Overview: Current genetic and archaeological evidence suggests that modern humans are very recent colonists of most of the earth's surface. This geographic movement is recorded in the patterning of our genes, languages and culture. The science of phylogeography maps the historical and current flow of information among individuals connected by interbreeding on the landscape. We will explore the phylogeography of modern humans, using simple genetic markers and language. After reviewing and teaching each other population genetics, coalescent theory, and phylogeography, we will consider the mechanisms of mutation, selection, drift and migration as they effect the signal of past human colonization, and review what is known of the last several hundred thousand years of our common history. The practical component of the course will be re-analyses of simple, publically-available data. Special topics (depending on interest and expertise) may include the analyses of ancient DNA, language evolution, and the archaeology of human migration.