ESS 185/Earthsys 183: Adaptation

Professor: James Holland Jones

Adaptation is the process by which organisms or societies become better suited to their environments. In this class, we will explore three distinct but related notions of adaptation. Biological adaptations arise through natural selection, while cultural adaptations arise from a variety of processes, some of which closely resemble natural selection. A newer notion of adaptation has emerged in the context of climate change where adaptation takes on a highly instrumental, and often planned, quality as a response to the negative impacts of environmental change. We will discuss each of these ideas, using their commonalities and subtle differences to develop a broader understanding of the dynamic interplay between people and their environments with a strong focus on the adaptations of subsistence populations (i.e., people who produce at least some of their own food through hunting, gathering, pastoralism, artisanal fishing, horticulture, etc.) and general lessons that can be learned from them. Topics covered will include, among others: evolution, natural selection, levels of selection, formal models of cultural evolution, replicator dynamics, resilience, rationality and its limits, risk and uncertainty, complexity, adaptive management.