**Pre-lab discussion questions for Hemoglobin Lab**

Come to class prepared to discuss these questions regarding the assigned reading:

Storz, J.F. 2007. Hemoglobin function and physiological adaptation to hypoxia in high-altitude mammals. *Journal of Mammalogy* 88: 24-31.

1. What does it mean to genetically adapted to chronic hypoxia?
2. Why do the deer mice the alleles a0c0 (high-elevation alleles) perform worse at low elevations than mice with a1c1 (low-elevation) alleles?
3. List the *independent* lineages mentioned in Storz (2007) in which hemoglobin modifications have occurred that resulted in a left-shifted oxygen-dissociation curve.
4. Hemoglobin adaptations in the α-subunit of deer mice are likely an adaptive response to low partial pressure of oxygen in the environment at high elevation. In addition to living at high elevations, what other environmental conditions may result in genetic adaptation to hypoxia? Considering this, what other organisms may have modified oxygen-carrying proteins? Recall that hemoglobin is just one of several oxygen-carrying proteins found in animals.