



# The Department of Ecology and Evolutionary Biology Fall 2017 Seminar Series

## Remote Sensing of Above and Belowground Processes: Aspen Forests and Old-Fields

Remote sensing excels at measuring two critically important ecosystem attributes: biodiversity and ecosystem functioning. Imaging spectroscopy (or hyperspectral imaging) techniques have exceptional abilities to measure both fine-scale biodiversity and ecosystem functioning metrics at large spatial scales. Two collaborative projects have used recent advances in remote sensing to address how biodiversity influences ecosystem functioning. A landscape-scale study in aspen forests demonstrates that the genetic and chemical variation in aboveground biomass, and the resulting variation in belowground process, can be estimated by AVIRIS imagery. However, monospecific aspen stands have a relatively homogenous canopy structure with well-characterized canopy chemistry. To explore mixed-species systems, we are in the initial stages of applying remote sensing techniques to assess biodiversity and ecosystem functioning relationships in an old field system. Key to both of these projects is the concept of optical surrogacy, that plant spectra can be used as surrogates for the biological and chemical characteristics that partially define above- and belowground functioning.



**Join us in welcoming Dr. Mike Madritch**

**Friday, September 29, 2017**

**SERF 307 - 3:30 PM**

**Pre-talk Reception 3:00 PM in Dabney 575**