**EES 79903 – Fall 2016**

Clay minerals and nanoparticles: crystal chemistry, geology and environmental applications

**Description:**

Principles of mineral behavior; structure of layer silicates; types of layer silicates; clay minerals groups; nanomaterials and nanoparticle minerals; x-ray powder diffraction techniques; clays in soils and sedimentary environments; burial diagenesis of clays; clays as paleoclimate indicators; electrochemical properties of clays; stability and/or metastability of clays; environmental uses of clays; bentonites and other specialty clays; clay formation and alterations during ore mineralizations; clay minerals and the origin of life